**United States Environmental Protection Agency: Region 5**

Proposed Reopening of Air Pollution Control Title V Permit to Operate
Issued to Veolia ES Technical Solutions, L.L.C., 7 Mobile Avenue, Sauget, Illinois
Permit No. V-IL-1716300103-08-01; Expires October 12, 2013

Docket ID No. U.S. USEPA-R05-OAAR-2012-0649

**Comments and Affidavit of Ralph L. Roberson, President, RMB Consulting & Research, Inc. in Support of Veolia ES Technical Solutions, L.L.C.**

I, Ralph L. Roberson, being over the age of 18 and of sound mind, state and depose under oath as follows:

1. I am a professional engineer licensed in Virginia. I have been licensed in Virginia since 1974. I received my Bachelors of Science in mechanical engineering from the University of Virginia in 1969. I received my Masters of Science in mechanical engineering from the University of Virginia in 1971. I am a founder and president of RMB Consulting & Research, Inc. ("RMB"). I have included my curriculum vitae as "RLR Attachment 1" and incorporate it by reference as if set forth fully herein.
2. I have over 40 years of experience in conducting air pollution emission measurements and assessing the performance of air pollution measurement technologies at numerous combustion sources. I am an expert in air pollution emissions (measuring and monitoring) and have provided expert testimony most recently in *Flint Riverkeeper, et al. v. Georgia Department of Natural Resources,* OSAH-BNR-AQ-1115319-60-Howells and also in *Grand Canyon Trust et al. v. Public Service Company of New Mexico,* No. CV 02-552 BB/ACT. *See* RLR Attachments 2 & 3.
3. I am knowledgeable and have experience with a number of different continuous emission monitoring systems ("CEMS"). In 2007, Pall Corporation ("Pall") retained me to

evaluate its Xact Continuous Mercury Monitor CEMS relative to the requirements set forth in USEPA Performance Specification 12A, which was recently promulgated and is the performance specification for mercury CEMS. On behalf of the Electric Power Research Institute (EPRI), I managed three particulate matter (PM) CEMS field evaluation projects, which were conducted at coal-fired power plants. The first project was conducted at a plant in Georgia in 1998; the second project was conducted at a plant in Wisconsin in 2000; and the most recent project was conducted at a plant in Michigan in 2010 - 2011. I conducted $SO_2$ and $NO_X$ CEMS quality assurance training at six coal-fired power plants that are subject to EPA's Part 75 CEMS monitoring requirements, and I participated in the Acid Rain Advisory Committee (ARAC) process that assisted EPA in the development of the Part 75 CEMS regulations[1] pursuant to the acid rain provisions of the 1990 Clean Air Act. In 1984, I was a principal investigator in developing an EPRI document titled, "Continuous Emission Monitoring Guidelines," -- a manual the electric utility industry relied for specifying, purchasing and installing $SO_2$ and $NO_X$ continuous monitoring systems.

4. I have reviewed the Draft Permit and the Statement of Basis dated January 2013 for Permit No. V-IL-1716300103-08-01 at the request of Veolia ES Technical Solutions, L.L.C. ("Veolia"). I focused in particular on the portions of the Draft Permit and Statement of Basis relating to the Cooper Environmental Services, LLC/Pall Corporation Xact 640 Multi-Metal Continuous Emissions Monitoring System ("Xact Multi-Metals CEMS").

5. Under the HWC MACT rule, incinerators such as Veolia must conduct comprehensive performance tests to establish metal feedrate limits, and must analyze feedstreams prior

[1] The Part 75 CEMS regulations apply to $SO_2$, $NO_X$, $CO_2/O_2$, and volumetric flow rate monitoring systems.

to feeding the material into the incinerator and document the amount of mercury, low volatile metals (arsenic, beryllium, chromium) and semi-volatile metals (lead and cadmium) in each feedstream. The HWC MACT rule provides Veolia with the choice to either document compliance using feedrate limits (also referred to as operating parameter limits—OPLs) and feedstream analysis, or it may petition USEPA to install and operate CEMS to directly measure emissions and comply with the HWC MACT limits. Veolia has chosen to document compliance using feedrate limits and feedstream analysis. 40 C.F.R. § 63.1209(c) requires incinerators to develop and implement a feedstream analysis plan ("FAP") "that is sufficient to document compliance with the applicable feedrate limits." The plan must be submitted to USEPA on request. Veolia has documented its compliance consistent with the regulations as USEPA found in its June 18, 2012 memorandum: "Veolia's FAP literally has all of the elements that 40 C.F.R. Section 63.1209(c)(2)(i) through (vi) require." *See* RLR Attachment 4 at 2-3.

6. None of the commercial hazardous waste incinerators in Region V use multi-metals CEMS; rather, based on my review of existing permits, all commercial hazardous waste incinerators in Region V (including Veolia) demonstrate compliance through the use of OPLs, FAPs, and stack testing. Further, no commercial hazardous waste incinerator in the United States utilizes a multi-metals CEMS to demonstrate compliance with MACT metals limits. In my opinion, Veolia's current FAP, OPLs, and stack testing yield reliable data and demonstrate Veolia's compliance with the HWC MACT emissions limits for metals.

7. USEPA's attempt to require Veolia to install a multi-metals CEMS on Unit 3 is inconsistent with USEPA's actions with regard to the OPLs included in the Draft Permit.

USEPA has, with the exception of mercury, proposed increasing all of Veolia's metals OPLs. *See* USEPA, U.S. USEPA Proposes to Reopen Title V Air Permit: Veolia ES Technical Solutions Air Permit: Sauget, Illinois 2 (Jan. 2013) (hereinafter "USEPA Fact Sheet"); Region 5, USEPA, Statement of Basis, Title V Permit to Operate, Permit No. V-IL-1716300103-08-01, at 17 (Jan. 2013) (hereinafter "Statement of Basis").

8. USEPA attempts to justify the installation of a multi-metals CEMS by stating "[t]he use of a multi-metals CEMS is the only sure way to verify that Veolia's feedstream analysis procedures and the proposed federate limits are sufficient to assure continuous compliance with the HWC MACT limits." Statement of Basis at 25. However, if USEPA believed that Veolia's emissions were potentially violating the HWC MACT, USEPA would have decreased, rather than increased, Veolia's OPLs for metals.

9. The HWC MACT does not reflect a general acceptance of multi-metals CEMS technology as applied to commercial hazardous waste incinerators. Under the HWC MACT rule, a facility must either comply with feedrate limits or may petition USEPA to install and operate a CEMS. *See* Statement of Basis at 20. If a facility petitions to use a CEMS, the petitioner must prove to USEPA that the CEMS technology will work in the particular application. However, in this case, USEPA has prevented Veolia from making the choice of whether to use a multi-metals CEMS. Rather, USEPA is vouching for the accuracy of the multi-metals CEMS when used in Veolia's application. USEPA's actions in this matter are unprecedented in my experience, particularly given that the multi-metals CEMS technology is presently not being used anywhere in the United States for compliance purposes on a commercial hazardous waste incinerator.

10. Despite USEPA's insistence that Veolia install the Xact CEMS, USEPA appears to have little actual experience with the instrument. Within 24 hours after meeting with Veolia on September 18, 2012, and instructing Veolia that it needed to install a multi-metals CEMS, USEPA's Jeff Ryan and Pall's Business Development Manager, Douglas Barth, exchanged e-mails in which USEPA requested assistance in making their case with regard to the CEMS. In his September 19, 2012, e-mail, Barth tells Ryan, "It looks like this effort will take some time and tact. I will be happy to guide you and R5 [Region 5] through the maze of information to build a scientifically defensible case for our XRF CEMS on HWI [hazardous waste incinerators]." Ryan sent Barth an e-mail on September 20, 2012, telling Barth a few of Veolia's major concerns: "Short story is I want to confirm/refute status of system at Lily and need to know whether you can operate @40% moisture. These are their 2 major points as why not." Subsequently, when sending additional materials to Ryan on the CEMS, Barth, in a cover note, summarizes USEPA's purposes as follows: "Jeff, ***Per your request for building a case why*** the Xact 640 Multi-metals ***CEMS cannot be rejected*** from monitoring a HWI." RLR Attachment 5 (emphasis added).

11. These e-mails indicate that USEPA is requiring Veolia to install a multi-metals CEMS technology that USEPA neither completely understands nor can justify. USEPA has simply relied on information furnished by a representative of Pall without any supporting data and clearly without independent verification. Not surprisingly, once Barth was thrust into USEPA's role of evaluating the available CEMS technology, Barth found his company's Xact Multi-Metals CEMS to be just the measurement device that Veolia needed.

12. USEPA correctly acknowledges the HWC MACT rule does not mandate the use of CEMS to document compliance with the emission limits for mercury, LVMs, or SVMs, based in part on USEPA's determination that performance specifications for multi-metals CEMS were not yet available at the time of finalization of the rule. Statement of Basis at 21. To date, nothing has changed. USEPA has not promulgated performance specifications or ongoing quality assurance or quality control procedures for multi-metals CEMS. Absent such specifications and procedures, the performance of a multi-metals CEMS cannot be evaluated and results produced by a multi-metals CEMS such as the Xact Multi-Metals CEMS cannot be relied upon to accurately measure emissions from an incinerator.

13. Historically, USEPA has proposed CEMS performance specifications through notice and comment rulemaking. USEPA receives public comments, responds to those comments, and ultimately issues a final rule that contains the performance specification. In these instances, USEPA can expect to receive comments from the full array of stakeholders (e.g., the regulated sources, environmental groups, and CEMS suppliers). Similarly, historically, a group of companies have designed, developed and supplied the market with CEMS (e.g., Thermo Fisher, Monitor Labs, California Analytics, etc.) and another completely independent group of companies have manufactured and supplied the market with calibration gases for those CEMS (e.g., Air Liquide, Airgas, Linde, etc.).

14. However, in the present case, no checks and balances exist. Unlike a broader rulemaking, other regulated sources have no incentive or reason to comment on the current reopening of Veolia's Title V permit. In addition, the market for multi-metals CEMS consists of Pall, as a single supplier of both the equipment and the calibration

materials. Thus, there is no way to independently verify the accuracy of the equipment. Finally, USEPA's total reliance on Pall in this particular case is, in my experience, truly extraordinary and, if not inappropriate, certainly provides the appearance of impropriety.

15. The Statement of Basis sets forth "USEPA has performed side-by-side evaluations of multi-metals CEMS with USEPA Method 29... at industrial waste incinerators and found good correlation between the two methods." Statement of Basis at 22-23. As a reference for this statement, USEPA cites to 75 Fed. Reg. 31962 (June 4, 2010). The quote used in the Statement of Basis is lifted directly from the *Federal Register*. Unfortunately, the *Federal Register* passage appears in the preamble to a proposed rule and contains no reference or documentation. Thus, without more evidence, it is impossible to evaluate USEPA's claims concerning the correlation between multi-metals CEMS and Method 29.

16. USEPA has never promulgated performance specifications or the requisite ongoing quality assurance procedures ("QA") for multi-metals CEMS. The performance specifications and QA procedures USEPA alludes to for multi-metals CEMS in footnote 24 of the Statement of Basis have only been proposed (in 1996), but have never been issued as a final rule.

17. Further, USEPA states, "USEPA has published performance specifications and QA procedures for... multi-metals CEMS" as OTM 16 and OTM 20. Statement of Basis at 23. USEPA has never published these specifications and procedures in the *Federal Register*; rather, the two documents are posted on an USEPA website: www.epa.gov/ttn/emc/tmethods.html. Both documents have cover pages stamped "DRAFT" and are dated June 2005. More importantly, the two documents were written by the developer and owner (at the time) of the Xact Multi-Metals CEMS—Cooper

Environmental Services ("Cooper"). USEPA has offered no evidence that OTM 16 or OTM 20 has ever been applied to the Xact Multi-Metals CEMS, either at the Eli Lilly Incinerator referenced in the Statement of Basis, or, for that matter, to any other multi-metals CEMS.

18. OTM 16 and OTM 20 are included on the website: www.epa.gov/ttn/emc/tmethods.html under "Category C: Other Methods." The website states in relevant part: "This category includes test methods which have not yet been subject to the Federal rulemaking process...[t]he methods may be considered as candidates to be alternative methods...[h]owever, they must be approved as alternatives under...63.7(f) before a source may use them for this purpose... [a]s many of these methods are submitted by parties outside the Agency, the USEPA staff may not necessarily be the technical experts on these methods...Also, be aware that these methods are subject to change based on the review of additional validation studies or on public comment as part of adoption as a Federal test method, the Title V permitting process, or inclusion in a SIP." Thus, in this reopening, USEPA is requiring Veolia to purchase and install a multi-metals CEMS, the accuracy of which relies upon procedures that USEPA did not write and for which USEPA may not be technically proficient. Further, USEPA requires Veolia use procedures that were not subject to the Federal rulemaking process and are subject to change without notice. USEPA intends to use data from the multi-metals CEMS—data generated using OTM 16 and OTM 20—contrary to USEPA's own policy that the CEMS cannot be used as alternative monitoring until approval is sought pursuant to 63.7(f). Given these facts, USEPA's requirement that Veolia install a multi-metals CEMS is wrong and unprecedented.

19. USEPA states, "[m]oreover, multi-metals CEMS are an accepted option for metals emission compliance in the recently promulgated mercury and air toxics (MATS) rule. Therefore, the multi-metals CEMS has been proven to be reliable for measuring actual emissions of HAP metals from a hazardous waste combustor such as Veolia." Statement of Basis at 23. However, the second sentence does not logically flow from the first. The MATS rule does not contain the phrase "multi-metals CEMS" anywhere in either the regulatory language or even in the preamble. The MATS rule does establish mercury and non-mercury metals emissions limits for coal- and oil-fired EGUs. A unit affected by MATS may demonstrate compliance with the mercury emission standards by using a certified mercury CEMS or a mercury sorbent trap monitoring system. The Xact Multi-Metals CEMS does not satisfy the requirements of either of these two accepted monitoring approaches. For non-mercury metals, an affected unit may elect to demonstrate compliance with a surrogate—filterable particulate matter (PM). Alternatively, an affected unit may elect to comply with the specific, non-mercury metals emission limits. However, the approved compliance options for non-mercury metals are: (a) conduct quarterly stack test using USEPA's manual, multi-metals test method (Method 29), or (b) install and operate a PM continuous parameter monitoring system (CPMS).

20. The MATS rule does provide that an affected facility may comply with the metal HAP emission limits using a CEMS approved in accordance with § 63.7(f) as an alternative to the test methods specified in the MATS rule. *See* 77 Fed. Reg. 9,478 (Feb. 16, 2012). Even if one assumes, for the sake of argument, that a "HAP metals CEMS" is functionally equivalent to a "multi-metals CEMS," USEPA's assertion that the MATS

rule makes multi-metals CEMS an "accepted option" that is "proven to be reliable" is false. First, the MATS rule places the burden on the facility: (1) to determine whether to utilize a CEMS, (2) to select the particular CEMS to utilize, and (3) to prove to USEPA, through the development of site-specific testing procedures and requirements, that the Agency should authorize the use of the CEMS at the affected facility. The MATS rule contains no performance specifications for the HAP metals CEMS—despite the fact that OTM 16 and OTM 20 existed at the time the MATS rule was issued. Importantly, the MATS rule states that an affected facility may petition the Administrator to use a HAP metals CEMS as an alternative method. The ability to petition USEPA for an alternative method is recognized in 40 C.F.R. 63.7(f) which simply states that any affected facility may petition the Administrator to use *any* alternative test method to any USEPA test method specified in a relevant emission standard. It is the approval, not the consideration, that demonstrates whether the technology is acceptable. If, as the Statement of Basis alleges, multi-metals CEMS technology was proven to be reliable in hazardous waste combustors such as Veolia, the MATS rule would not have treated the CEMS as an alternative method that required a petition to USEPA. Rather, the MATS rule, which was issued in 2012, would have simply required the installation of the multi-metals CEMS as an approved method of compliance. However, it did not.

21. USEPA states, "[t]he use of a multi-metals CEMS is the only sure way to verify that Veolia's feedstream analysis procedures and the proposed feedrate limits are sufficient to assure continuous compliance with the HWC MACT limits." Statement of Basis at 21. USEPA's statement is false. CEMS do not analyze or measure "procedures" or "feedrates"; CEMS only measure emissions. Further, USEPA's concern about not

obtaining actual emissions performance is a concern it has with every commercial hazardous waste incinerator. Veolia should not be treated any differently than any other incinerator. If a multi-metals CEMS were the only acceptable approach, then USEPA should require every incinerator to install and operate a multi-metals CEMS.

22. USEPA states, "multi-metals CEMS are commercially available and have been demonstrated to be reliable for measuring mercury and other metal emissions from hazardous waste combustors." Statement of Basis at 21. No commercial hazardous waste incinerator currently operates a multi-metals CEMS for the purpose of demonstrating compliance. The Statement of Basis suggests multiple examples (note the use of "are" and the plural form of "combustors"), yet USEPA only identifies, by name, the Eli Lilly incinerator in Indiana. USEPA has placed into the administrative record e-mails that confirm that the Xact Multi-Metals CEMS was removed from service at the former Eli Lilly location because it failed. The current operator of the incinerator (Evonik Industries) concluded that replacing the Xact Multi-Metals CEMS could not be justified.

23. Based on the close relationship between USEPA and Pall as evidenced by the e-mails USEPA placed into the administrative record, I question whether USEPA's desire to have Veolia install a multi-metals CEMS is based upon an attempt to obtain a new source to host the ongoing research and development of the Xact CEMS, particularly since Eli Lilly has ceased using the Xact Multi-Metals CEMS. Veolia should not be required to assume the research and development role that in this case clearly belongs to the makers of the Xact Multi-Metals CEMS, and perhaps USEPA.

24. USEPA states "generally, feedstream analysis poses several challenges including the uncertainty associated with (1) measurement of extremely low metal concentrations in the feedstream (i.e., concentrations at or near the detection limit of the measurement device); (2) heterogeneity of the hazardous waste, which may lead to a non-representative sample and hence an inaccurate estimate of the metal feed concentration; (3) inability to demonstrate continuous compliance with MACT limits, as required by the HWC MACT, since there is generally a considerable time lag time between sampling and analysis." Statement of Basis at 21. USEPA maintains in the Statement of Basis that the uncertainties caused by feedstream analysis are largely solved with an USEPA-approved CEMS, such as the multi-metals CEMS USEPA has included in Veolia's permit. USEPA's statement assumes the Xact Multi-Metals CEMS is proven technology and can be evaluated against a CEMS performance specification. However, as discussed above, the technology is not proven and USEPA has never approved the multi-metals CEMS performance specification cited in the Statement of Basis.

25. Finally, as a primary owner of a consulting company that specializes in advising its clients with respect to emission monitoring technology, I believe it is poor policy for USEPA to essentially grant a monopoly to Pall, a single supplier of monitoring equipment as they have done here. USEPA is an independent agency of the federal government. USEPA demeans its independent status by deferring to and advocating on behalf of a single supplier as USEPA has done in the case of Pall. Further, such advocacy diminishes the likelihood of technical advancement by other potential competitors while also prejudicing Veolia. A single supplier in the situation presented by this reopening—where Veolia is

being forced to buy their product—not only has the financial incentive to overrepresent that its technology works, but also has no incentive to price its equipment reasonably.

FURTHER AFFIANT SAYETH NOT.

Ralph L. Roberson

SWORN AND SUBSCRIBED
Before me this 21 day
of March, 2013.

Notary Public

My Commission Expires:

05/04/2013

Attachment 1

# RALPH L. ROBERSON

## EDUCATION

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|---|---|
| 1971 | M.S. in mechanical engineering, University of Virginia |
| 1969 | B.S. in mechanical engineering, University of Virginia |

## PROFESSIONAL CERTIFICATION

Professional Engineer: Virginia

## SPECIALIZED TECHNICAL EXPERTISE

- Expert testimony: statistical analyses, opacity and particulate matter relationship, emission limits based on maximum achievable control technology, probability of exceedances, correlation analyses, hazardous air pollutant emissions from coal-fired boilers, and status of emerging continuous monitoring technology.
- Data analysis: use of state-of-the-art statistical techniques to estimate emissions and to analyze emissions and opacity data: to determine achievability of emission standards; to assess emission increases; to evaluate control technology effectiveness; and to estimate exposure to various air pollutants.
- Continuous emission monitoring systems (CEMS): regulatory analysis, alternative monitoring methods and procedures, quality assurance/quality control plans, and design/purchase specifications, with emphasis on particulate matter (PM) and mercury (Hg) continuous emission monitoring systems.
- Hazardous air pollutants: emissions from electric utility boilers, regulatory analysis, risk analysis, and assessment of control technology performance.

## PROFESSIONAL EXPERIENCE

**Mr. Ralph Roberson** is one of the founders of RMB Consulting & Research, Inc. and serves as president of the company. His recent experience includes technical assistance to electric utility companies in complying with EPA's 2010 information collection request (ICR), detailed statistical analysis of mercury emission data and statistical assessment of data collected by continuous particulate matter (PM) monitors. He was a technical consultant to EPRI for a project that developed emission factors for hazardous air pollutants (HAPs) for coal-fired power plants.

Mr. Roberson has over 40 years of experience in conducting air pollution emission measurements, analyzing air pollution emission test data, preparing air pollution estimates and air permit applications, and assessing the performance of air pollution measurement technologies at numerous combustion sources, including at least 100 coal-fired electric generating units (EGUs). During the past 20 years, he has also: developed and used state-of-the-art statistical techniques to estimate hazardous air pollutant (HAP) emissions and analyze

HAP data from EGUs; determined whether proposed emission standards and limits are achievable; evaluated control technology effectiveness and performance; and assessed the performance of continuous emission monitoring system (CEMS) for various pollutants, including particulate matter, sulfur dioxide ($SO_2$) and hydrogen chloride (HCl).

He provided technical assistance to electric utility companies in complying with EPA's 1999 mercury information collection request (ICR), analyzing hazardous air pollutant emission data from coal- and oil-fired power plants in order to estimate accurately power plant health risks; conducting CEMS quality assurance training at six coal-fired power plants that are subject to EPA's Part 75 CEMS monitoring requirements; participating in the Acid Rain Advisory Committee (ARAC) process that assisted EPA's development of regulations pursuant to the acid rain provisions of the 1990 Clean Air Act Amendments; managing a project that utilized state-of-the-art statistical techniques to demonstrate that short-term ambient air quality standards can be protected by long-term source emission standards; managing a nationwide exposure assessment of asthmatics to short-term elevated $SO_2$ concentrations; directing a preliminary impact analysis of the effects of electric utility plants on short-term ambient $NO_2$ concentrations; serving as peer reviewer for EPA's development of toxic air pollution emission factors for combustion sources; and conducting an analysis to estimate the impact on ambient air quality and MEI risks of co-firing hazardous wastes in utility boilers.

Mr. Roberson has conducted a nationwide risk assessment of trace pollutant emissions from coal- and oil-fired utility plants. This project involved development of trace pollutant emissions factors, specification of nine reference utility plants, and coordination of computerized modeling utilizing EPA's HEM and EPRI's AERAM. He also managed a project that assessed radiological risks posed by emissions from coal-fired power plants. Activities in this effort involved developing a radionuclide sampling protocol, coordinating radiochemical analysis of samples, preparing quality assurance procedures, and preparing input parameters for AIRDOS-EPA computerized modeling runs.

In addition to these projects, Mr. Roberson has performed particle size analysis; directed emission tests for criteria and hazardous air pollutants (particulate matter, sulfur dioxide, oxides of nitrogen, mercury, lead, and fluoride); and consulted with industry to define and solve environmental and industrial hygiene problems.

Mr. Roberson was project leader on a U.S. EPA project to develop a National Emission Standard for hazardous air pollutants from the oil shale industry. He also worked with EPA's Oil Shale Working Group, which was responsible for directing development of the Pollution Control Guidance Document for Oil Shale. In a series of tasks for EPA's Division of Stationary Source Enforcement, he worked with the national CEMS program to assess levels of source compliance, evaluate reporting requirements, and review excess emission and performance specification test reports. He also directed development of a computerized, nationwide CEMS data base under a task coordinated through Edison Electric Institute and all EPA regional offices as well as many state and local air pollution control agencies.

## PROFESSIONAL AFFILIATIONS

Air and Waste Management Association, Emeritus Member
- Member of AM-4 Source Monitoring Committee
- Member of EI-2 Power Generation Committee

American Society for Mechanical Engineers
Sigma Xi

## SELECTED PRESENTATIONS AND TECHNICAL REPORTS

"Data Collection Plan for a Particulate Matter Continuous Emissions Monitoring System," prepared for Tampa Electric Company, Tampa, FL, March 2009.

"Rebuttal Expert Report," prepared for Tennessee Valley Authority, Knoxville, TN, November 2008.

"Status of Particulate Matter Continuous Emission Monitoring Systems 2007," prepared for EPRI, Palo Alto, CA, 1014180, December 2007.
"Report of Ralph L. Roberson for Dayton Power & Light Company, Inc.," Expert Report on Analyzing and Using Opacity Data for Compliance Assessments, July 2007.

"Report of Ralph L. Roberson for American Electric Power Company, Inc. and Southwestern Electric Power Company," Expert Report on Using Opacity Measurements for Compliance, prepared for American Electric Power, September 2006.

"Expert Report on Measuring Opacity and Using Compliance Assurance Monitoring (CAM) Plan Results for Compliance Determinations," prepared for Mountain Cement Company, August 2005.

"Technical Report: Relative Stringency of Periodic Measurement Versus Continuous Emission Monitoring," prepared for Ohio Electric Utility Institute, July 2005.

"Technical Review Comments, EPA's 'Proposed National Emission Standards for Hazardous Air Pollutant; and in the Alternative, Proposed Standards of Performance for New and Existing Stationary Sources: Electric Utility Steam Generating Units' and 'Supplemental Notice for the Proposed National Emission Standards for Hazardous Air Pollutant; and in the Alternative, Proposed Standards of Performance for New and Existing Stationary Sources: Electric Utility Steam Generating Units," (with R. McRanie) prepared for the Utility Air Regulatory Group, Washington, DC, June 2004.

"Expert Report on Alternative Methods for Measuring Opacity for Coal-Fired Power Plants," prepared for Georgia Power Company, December 2003.

"Characterizing Coal-Fired Power Mercury Emissions Variability at Low Concentrations," prepared for EPRI, Palo Alto, CA, 1009150, October 2003.

"Characterizing Variation in Mercury Emissions from Coal-Fired Power Plants," prepared for EPRI, Palo Alto, CA, and U.S. Department of Energy, Pittsburgh, PA, 1005401, June 2003.

"Characterization of 'Longer-Term' Mercury Emissions from Coal-Fired Power Plants," (with P. Chu et al.) in *Proceedings of the Combined Power Plant Air Pollution Control Mega Symposium,* Washington, DC, May 2003.

"Expert Report on Stringency of Opacity Standard Based on Continuous Opacity Monitoring (COM) Data," prepared for Public Service New Mexico, December 2002.

"Continuous Emission Monitoring Guidelines - 2002 Update," (with R. Berry and D. Sanders) prepared for EPRI, Palo Alto, CA, 1004179, September 2002.

"Technical Review Comments on EPA's Proposed Rule Regarding Particulate Matter (PM) Continuous Emission Monitoring Systems (CEMS)," prepared for Utility Air Regulatory Group, Washington, DC, March 2002.

"Status of Particulate Matter Continuous Emission Monitoring Systems," prepared for EPRI, Palo Alto, CA, 1004029, October 2001.

"Analysis of the Stringency of the Tennessee Opacity Standard Based on Continuous Opacity Monitoring System Measurements as Compared to Periodic Method 9 Readings," prepared for Tennessee Valley Authority, July 2001.

"Results of Continuous PM Monitor Testing at Pleasant Prairie Power Plant," (with J. Koning and C. Dene) presented at the EPRI CEM Users Group Meeting, Charlotte, NC, May 2001.

"Status of Mercury Continuous Emission Monitoring Systems," prepared for EPRI Energy Conversion Division, September 2000.

"Evaluation of Continuous Particulate Matter (PM) Monitors for Coal-Fired Utility Boilers with Electrostatic Precipitators," (with C. Mitchell and C. Dene) presented at the EPRI CEM Users Group Meeting, Cincinnati, OH, May 1999.

"EPA's Mercury Information Collection Request," presented at the Electric Utilities Environmental Conference, Tucson, AZ, January 1999.

"Status of CEM Systems for Particulate Matter (PM) Emissions and Selected Non-Criteria Pollutants," prepared for EPRI Energy Conversion Division, September 1998.

"Status of EPA's Continuous Particulate Mass (PM) Monitor Demonstrations," presented at the EPRI CEM Users Group Meeting, Denver, CO, May 1997.

"Mercury Measurement Methods for Electric Utility Plants" (with B. Nott and P. Chu), presented at A&WMA Conference, Acid Rain and Electric Utilities II, Scottsdale, AZ, January 1997.

"Mercury and Other Trace Elements in Coal" (with S. Baker), EPRI TR-106950, prepared for Electric Power Research Institute (1997).

"Mercury Speciation Methods for Utility Flue Gas" (with D. Laudal, et al), *Fresenius Journal of Analytical Chemistry,* in press.

"Status of CEM Systems for HAP Emissions," presented at the EPRI CEM Users Group Meeting, Kansas City, MO, May 1996.

"Status of Flue Gas Mercury Measurement Methods for Electric Utility Power Plants" (with B. Nott), prepared for the Electric Power Research Institute (1996).

"Overview: Mercury Emissions from Fossil Fuel-Fired Electric Generating Units" (with S. Baker), prepared for the Florida Electric Power Coordinating Group (1994).

"Review and Critique of EPA's Proposed CEM Accuracy and Bias Test Procedures," prepared for Utility Air Regulatory Group (1992).

"Review of Proposed Amendments to New Mexico Air Quality Control Regulation 603 - Coal Burning Equipment - Nitrogen Dioxide," prepared for Arizona Public Service Company (1991)

"Analysis of Ethyl Emission Test Data" (with D. Dickey), prepared for the Ethyl Corporation (1990).

"Continuous Emission Monitoring and Quality Assurance Requirements for New Power Plants." Presented at the 1989 Joint Power Generation Conference, Philadelphia, PA (1989).

"Compliance with Appendix F Requirements by Subpart Da Facilities During 1988," prepared for Utility Air Regulatory Group (1989).

"Assessment of Ambient Air Quality Impacts from Co-Firing Hazardous Wastes in Electric Utility Boiler," prepared for Utility Air Regulatory Group (1989).

"Degree of Protection Against NAAQS Violations Provided by 30-Day Rolling Average Emission Limits at Public Service of Indiana Cayuga Generating Station" (with others) (1989).

"Assessment of Risks Posed by Radionuclide Emissions from Coal-Fired Power Plants," prepared for Utility Air Regulatory Group (1988).

"Assessment of the Impact of the Subpart Db New Source Performance Standards on Electric Utility Auxiliary Boilers," prepared for Utility Air Regulatory Group (1987).

"Quality Assurance Plan for Continuous Emission Monitoring Systems," prepared for Intermountain Power Project (1986).

"Nationwide Assessment of Risks Posed by Coal and Oil Combustion in the Electric Utility Industry," prepared for Utility Air Regulatory Group (1986).

"Continuous Emission Monitoring Guidelines" (with T. Eggleston), EPRI CS-3723, prepared for Electric Power Research Institute (1984).

"Quality Assurance Plan for Continuous Emission Monitoring Systems," prepared for Montana Power Company (1984).

"Characterization of Radionuclide Emissions from Coal-Fired Utility Boilers," prepared for Utility Air Regulatory Group (1983).

**EMPLOYMENT HISTORY**

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|---|---|---|
| RMB Consulting & Research, Inc. | President | 1994 to present |
| Systems Applications International | Vice President | 1990-1994 |

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|---|---|---|
| Roberson Pitts, Inc. | President | 1987-1990 |
| Kilkelly Environmental Associates, Inc. | Vice President | 1981-1987 |
| Research Triangle Institute | Senior Environmental Engineer | 1979-1981 |
| Commonwealth Laboratory, Inc. | Manager, Technical Services Division | 1973-1979 |
| Newport News Shipbuilding and Dry Dock | Senior Analyst | 1971-1973 |

Attachment 2



**BEFORE THE OFFICE OF STATE ADMINISTRATIVE HEARINGS**
**STATE OF GEORGIA**

| | | |
|---|---|---|
| **FRIENDS OF THE CHATTAHOOCHEE, INC., and SIERRA CLUB,** | : | |
| **Petitioners,** | : | |
| **v.** | : | |
| | : | |
| **F. ALLEN BARNES, DIRECTOR, ENVIRONMENTAL PROTECTION DIVISION, GEORGIA DEPARTMENT OF NATURAL RESOURCES,** | : | **Docket No.: OSAH-BNR-AQ-1115157-60-Howells** |
| **Respondent,** | : | |
| | : | |
| **LONGLEAF ENERGY ASSOCIATES, LLC,** | : | |
| **Intervenor/Respondent.** | : | |

## FINAL DECISION

On November 8, 2010, the Director of the Environmental Protection Division ("EPD") of the Georgia Department of Natural Resources issued Permit Amendment No. 4911-099-0033-P-01-2 ("Permit Amendment") to Longleaf Energy Associates, LLC ("Longleaf"). The Permit Amendment added limits and conditions to make the facility a minor source of hazardous air pollutants ("HAPs"), reduced the mercury emission limits, and extended the deadlines to commence and complete construction. On December 8, 2010, Friends of the Chattahoochee, Inc. and Sierra Club (collectively "Petitioners") filed a Petition for Hearing challenging the reclassification of the Longleaf facility from a major source of HAPs to a minor source.[1] The hearing was conducted on February 8-10, 2011.[2]

[1] On December 8, 2010, Flint Riverkeeper, Don Lambert, and Walter Lee also filed a Petition for Hearing, in which they challenged only the extension of the deadlines to commence and complete construction. Initially, both matters were consolidated. However, on February 2, 2011, this Tribunal granted Longleaf's Motion for Summary Determination as to the Flint Riverkeeper *et al.* Petition and dismissed that matter.

[2] The record closed on February 23, 2010, with the receipt of the parties' post-hearing submissions. On February 25, 2011, Petitioners filed a motion to allow consideration of newly discovered evidence. In particular, Petitioners sought to introduce a permit revision request submitted by Sandy Creek Energy Associates, L.P., to the Texas Commission on Environmental Quality, and a Declaration of Petitioner's expert, Ranajit Sahu, Ph.D., analyzing the

**Procedural History**

On May 14, 2007, EPD issued a Prevention of Significant Deterioration ("PSD") Permit ("Permit") to Longleaf for the construction and operation of a nominal 1200 megawatt ("MW") coal-fired generating station in Early County, Georgia. *See Friends of the Chattahoochee v. Couch*, Docket No. OSAH-BNR-AQ-0732139-60-Howells, Final Decision on Remand (Apr. 2, 2010) ("*Longleaf I*").

On June 13, 2007, Petitioners filed a 17-count Petition challenging the Permit. Nearly three years of litigation ensued, including a lengthy hearing before this Tribunal, an appeal to the Superior Court of Fulton County, an appeal to the Georgia Court of Appeals, a denial of certiorari by the Georgia Supreme Court, and a remand from the Georgia Court of Appeals to this Tribunal. *Id.*

On February 8, 2008, while the appeal in *Longleaf I* was pending before the Fulton County Superior Court, the United States Court of Appeals for the District of Columbia Circuit decided *New Jersey v. EPA*, 517 F.3d 574 (D.C. Cir. 2008). In that case, the D.C. Circuit invalidated the Environmental Protection Agency's ("EPA") removal of electric generating units ("EGUs") from the list of sources of hazardous air pollutants ("HAPs") whose emissions are regulated under section 112 of the Clean Air Act.[3] As a result of the D.C. Circuit's decision, the

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document. Upon review of Petitioners' motion and the parties' responses in opposition, the Undersigned concludes that the evidence could have been discovered before the closing of the record. More importantly, because the permit revision is for a different facility, addressing different regulatory requirements in another state, the evidence will not materially impact this decision. Ga. Comp. R. & Regs. r. 616-1-2-.25. For these reasons, Petitioners' motion is denied.

[3] EPA initially added Coal- and Oil-Fired EGUs to the list of major sources of HAPs in December of 2000. *New Jersey v. EPA*, 517 F.3d 574, 579 (D.C. Cir. 2008). In March of 2005, after public comments on EPA's proposed alternatives to regulate emissions from coal and oil-fired EGUs, EPA removed EGUs from the major source list. *Id.* at 580 (citing 70 Fed. Reg. 15,994, 16,002-08, 16,032 (Mar. 29, 2005) ("Delisting Rule")). At the time the Longleaf PSD permit was issued, the Delisting Rule was in effect and the proposed Longleaf facility was exempt from regulation as a source of hazardous air pollutants under Section 112 of the Clean Air Act. *Id.*; *see also New Jersey v. EPA*, 517 F.3d 574.

emissions of HAPs by EGUs are now subject to regulation pursuant to section 112 of the Clean Air Act. *See* 42 U.S.C. § 7412(g)(2)(B).

**Findings of Fact**

1.

On October 6, 2008, subsequent to the D.C. Circuit's decision in *New Jersey v. EPA*, Longleaf submitted an Application for Notice of MACT Approval. (Ex. J007). Longleaf's Application was premised on the assumption that the facility would be a major source of HAPs. (*See generally* Ex. J007; Int. St. 2 ¶ 8.)

2.

In June of 2009, EPD issued a Notice of MACT Approval and a draft permit amendment, which included proposed MACT limits for several categories of HAPs (Exs. J010, J012; Res. St. 2 ¶¶ 30-31.) EPD provided notice of and received comment on the draft permit amendment. (Ex. J010.) Petitioners and other organizations and individuals submitted comments on the draft permit amendment. (Ex. RI008.) Petitioners, along with others, asserted that Longleaf would be capable of achieving substantially lower emission limits than those required in the draft permit amendment. (*See* Ex. RI008; *see also* Int. St. 2 ¶ 7; Tr. 228.)

3.

After reviewing and considering the public comments, Longleaf reevaluated its projected HAP emissions and concluded that it could achieve lower emissions. (Int. St. 2 ¶ 8.) On December 22, 2009, Longleaf responded to the public comments and submitted an application to be considered a "minor source" of HAPs and, therefore, exempt from a case-by-case MACT analysis. (Ex. J014.) Longleaf submitted the minor source application because its management concluded that the minor source approach established a more objective standard, it could meet

the minor source limits, and it would bring more "regulatory certainty." (Tr. at 229; Int. St. 2 ¶ 8.)

4.

On April 9, 2010, EPD issued a permit amendment (No. 4911-099-0030-P-01-1) with limits and conditions intended to make Longleaf a "synthetic minor source" of HAPs.[4] (Ex. J017.) EPD withdrew that permit amendment on May 27, 2010 and issued a new draft permit amendment (No. 4911-099-0030-P-01-2) on June 1, 2010. (Res. St. 2 ¶ 37.) The permit conditions in the draft permit amendment were identical to those in the withdrawn permit amendment. (*Id.*)

5.

On June 1, 2010, EPD gave notice of the new draft permit amendment, and a public hearing was held on July 1, 2010. (Res. St. 2 ¶ 37.) EPD notified EPA about the draft permit amendment and the comment period. EPA did not comment on the June 2010 draft permit amendment. (*Id.* at ¶ 38.)

6.

Petitioners' attorneys submitted comments concerning the June 2010 draft permit amendment on behalf of Petitioners and a number of other organizations.[5] (Ex. J020.) Following public comment, EPD issued the final Permit Amendment on November 8, 2010. (Ex. J023.)

[4] A "synthetic minor source" is a facility that would be a major source "except that [its] potential to emit is reduced below major source thresholds by enforceable permit conditions." (Ex. J024 at 000003.)

[5] In those comments, Petitioners asserted that the draft permit amendment did not adequately limit Longleaf's potential to emit to levels less than the major source thresholds. (*See id.*) Petitioners further commented that, instead of issuing a synthetic minor source HAP permit, EPD was required to issue a Notice of MACT Approval for Longleaf. (Ex. J020 at 000030.) Petitioners then recommended that EPD review the emission data that EPA was in the process of collecting through an Information Collection Request ("ICR") when "evaluating MACT for Longleaf." (*Id.* at 000031.)

7.

In its minor source application, Longleaf included revised estimates of its HAP emissions. The revised HAP emissions were based on emission factors developed by the Electric Power Research Institute ("EPRI"),[6] emission estimates from the EPA's 1998 Utility Report to Congress, and the EPA "Webfire" database, as well as new stack test data, and analysis of emission data. (Int. St. 2 ¶¶ 24, 41, 43, 45, 47.) According to the revised estimates, Longleaf projected that it would not emit more than 10 tons per year ("tpy") of any one HAP or more than 25 tpy of the combined total of all HAPs. (Ex. J014.) Specifically, Longleaf projected that the facility would emit: 5.18 tpy of hydrogen chloride ("HCl"), less than 8.39 tpy of hydrogen fluoride ("HF"), 6.00 tpy of organic HAPs, 2.90 tpy of non-mercury metals, 0.075 tpy of mercury, 0.78 tpy of other HAPS, and less than 23.33 tpy in total HAPs. [7] (Ex. J014 at 000014.)

8.

Longleaf's revised estimates of HCl and HF were based, in part, on new stack test data, some of which Petitioners provided during the comment period. (Exs. J014 at 000005, RI08 at 000033-34.) Additionally, Longleaf consulted with experts, manufacturers of dry scrubber technology, and coal suppliers. (Int. St. 2 ¶ 22.)

9.

After reviewing the new stack test data, Longleaf contacted the facilities that reported higher HCl emissions to determine the reasons for their reported higher emissions. (Tr. 297-98; Ex. J014 at 000006.) In particular, Longleaf contacted the Newmont Nevada TS Power Plant,

[6] EPRI is a non-profit trade organization that was established in 1973. It is funded by its dues-paying members, who are electric utility companies throughout the United States. EPRI's purpose is to conduct collaborative research to benefit its members and their customers. (Tr. 354.)

[7] In its October 6, 2008 Application for Notice of MACT Approval, Longleaf estimated that it would emit more than 10 tpy of HCl, more than 10 tpy of HF, and 25 tpy of organic HAPs. (Exs. J007, J014; Tr. 506-07).

the Wygen II facility, and the Omaha Public Power District ("OPPD"). (Tr. 297-98; J014 at 000006.)

10.

Longleaf determined that the HCl emission results for each of these facilities were unreliable for the following reasons: Newmont had added calcium chloride to the coal to reduce mercury emissions, thereby effectively increasing the chlorine content of the coal; the operators of the Wygen II facility considered the high test result to be an outlier; and the reported limit for the OPPD facility was actually the detection limit of the test because the test resulted in a "non-detect." (Tr. 298; Ex. J014 at 000006.) As a non-detect, the true emission rate of the OPPD facility is unknown.[8] (*See* Tr. 406-07; *see also* Tr. 140.) For these reasons, Longleaf disregarded the results for the Newmont Nevada TS Power Plant, the Wygen II facility, and the OPPD. (Ex. J014 at 000006.)

11.

Longleaf conducted a statistical analysis of the stack test results, after it removed what it considered the outlier or unreliable results. Through that analysis, Longleaf derived an HCl emission estimate of $9.56 \times 10^{-5}$ pounds per million British thermal units ("lb/MMBtu"). (Ex. J014 at 000006.) If that emission rate is achieved by both boilers, at full load for 8,760 hrs/year, Longleaf would emit 5.14 tpy of HCl.[9] (*Id.*)

[8] When a test reports the value as a non-detect or below the detection limit, all that can be stated is that the emission is somewhere below the detection limit. It could mean that the emissions are zero or anywhere between zero and the detection limit. (Tr. 320-03, 452; Pet. St. 5 ¶ 52.)

[9] The emission data Longleaf reviewed and its HCl emission estimate are based on burning Powder River Basin ("PRB") coal. (Ex. J014 at 000005-6.) In its minor source application, Longleaf acknowledged that due to the higher chlorine content in Central Appalachian ("CAPP") coal it will be required to limit the amount of CAPP coal it burns to maintain compliance with the HCl emission limits in the Permit Amendment. (Ex. J014 at 000004, 000005 n.1, 000006; Res. St. 2 ¶ 34.)

12.

Longleaf also revised its HF emission estimates as a result of public comments and new stack test data. (Exs. J014 at 000006, RI008 at 36-39.) It conducted a statistical analysis of the stack test data, after it removed the results that were below detection limits. Through that analysis, Longleaf derived an HF emission estimate of $1.55 \times 10^{-4}$ lb/MMBtu. (Ex. J014 at 000007.) If that emission rate is achieved by both boilers at full load for 8,760 hrs/year, Longleaf would emit 8.35 tpy of HF.[10] (*Id.*)

13.

Longleaf's original estimates of the facility's organic HAP emissions were calculated using emission factors from AP-42, a compilation of emission factors that was initially published by the United States Public Health Service in 1968.[11] (Ex. J014 at 000007; Pet. St. 2 ¶ 3.) An emission factor is a representative value that is used to estimate the amount of a pollutant emitted with the associated activity. (Pet. St. 2 ¶ 2.) They are usually expressed as "the weight of the pollutant divided by a unit weight, volume, distance, or duration of the activity emitting the pollutant (e.g., pounds of particulate matter emitted per ton of coal burned)." (*Id.*) Emission factors are used to estimate emissions when there is an absence of specific emissions test or monitoring data for a particular source. (*Id.*)

14.

An EPD Guidance document describing how to calculate potential to emit ("PTE") directs owners and operators of stationary air pollution sources to use emission factors from AP-

[10] The emission data Longleaf reviewed and its HF emission estimate are based on burning PRB coal. (Ex. J014 at 000006-7.) Because the variation in fluorine content in PRB and CAPP coal is not significant, Longleaf does not expect its HF emissions while firing CAPP coal to differ significantly from the stack test data it reviewed. *Id.*

[11] AP-42 has been periodically updated by the EPA since 1970. (Pet. St. 2 ¶ 3.) The Fifth Edition of AP-42 was published in 1995. (*Id.* at ¶ 6.) Since then, EPA has published supplements and updates to the fifteen chapters. (*Id.*)

42, before resorting to emission factors developed by industry or trade associations. (Ex. J024 at 000013.)

15.

In its minor source application, Longleaf's revised estimates of organic HAP emissions were calculated using EPRI emission factors, as well as other emission data. (Ex. J014 at 000007-9.) However, EPD did not rely on Longleaf's revised estimates or the EPRI emission factors to establish the facility's PTE, or to determine that it was a minor source. (Tr. 567.) In fact, EPD presumed that Longleaf was a major source but for the limits and conditions in the Permit Amendment, which made it a synthetic minor source. *(Id.)* Longleaf's revised estimates, based in part on the EPRI emission factors, served only to support the reasonableness of the determination that the facility could actually achieve emission levels below the major source thresholds.[12] *(Id.)* Longleaf's PTE is established by the limits in the Permit Amendment (i.e., less than 10 tpy of any one HAP and less than a total of 25 tpy of all HAPs).[13] (Tr. 533, 567.)

16.

Prior to issuing the Permit Amendment, EPD reviewed the new information supplied by Longleaf in its minor source application, emission data from similar facilities showing low emissions of HAPs, and information from other states that have proposed or issued HAP minor source permits to coal-fired power plants.[14] (Tr. 575; Res. St. 2 ¶ 35.) EPD reviewed information concerning minor source permits for Duke Energy Cliffside (North Carolina), Big

[12] EPD had confidence in the EPRI emission factors, for the purpose they were used. Although EPRI is an industry organization, EPD considers it to be a respected organization in that its work has been used in reports to congress and, in some instances adopted by EPA. (Tr. 574-75.)

[13] According to the EPD guidance document, if a facility has an emission limit, such as a specific annual or twelve-month rolling total emission limit set by a practically enforceable permit condition, that emission limit becomes the facility's potential to emit for that specific pollutant. (Ex. J024 at 000007.)

[14] EPD did not have access to the EPRI Emission Factors Handbook before it issued the Permit Amendment. (Tr. 511.) With respect to the EPRI emission factors, EPD simply relied on the information supplied by Longleaf in its minor source application. (Tr. 513.) Despite not having the Handbook, Ms. Aponte considered EPRI a reputable source of emissions data. (Tr. 517.)

Stone II[15] (South Dakota), and Seminole (Florida). (Res. St. 2 ¶ 35.) In their minor source applications, Duke Energy Cliffside and Seminole relied on EPRI emission factors to estimate their emissions of HAPs.[16] (Tr. 393-94.)

***The HAP Limits and Conditions***

17.

Condition 2.25 of the Permit Amendment limits emissions of HAPs from the facility to less than 10 tons for any single HAP and less than 25 tons for any combination of HAPs during any 12 consecutive months. (Ex. J023 at 000005.) These limits pertain to all sources of emissions at the facility. (Tr. 127-28.)

18.

The facility's compliance with the HAP emission limitation in Condition 2.25 will be determined through a combination of conditions that require performance testing, monitoring, recordkeeping, emissions calculations, and reporting. (*See* Ex. J023; Res. St. 2 ¶ 61; Tr. 558-59.)

19.

Condition 8.27 states that "[t]he Permittee shall use the following equations to calculate the monthly HCl, HF and Total HAP emissions from each PC-fired boiler, S01 and S02."[17] (Ex. J023 at 000015.) Following the first paragraph, Condition 8.27 contains eight subparts designated "a" through "h," which provide the equations or means by which emissions are to be calculated or determined, described as follows:

a. Calculation of monthly HCl emissions from the PC-fired boilers

[15] The application in Big Stone II was subsequently withdrawn and a final permit was never issued.
[16] At the hearing, Longleaf presented evidence that the Holcomb Unit 2 (Kansas) also relied on EPRI emission factors to estimate their emissions of HAPs. (Tr. 393-94.)
[17] This Condition further provides that the Permittee must keep the calculations as part of the monthly record and that the records must be kept available for inspection or submission to EPD for five years from the date of the record. (Ex. J023 at 000015.)

b. Calculation of monthly HF emissions from the PC-fired boilers

c. Calculation of monthly emissions of non-mercury metals (other than selenium) that are included in Section 112 of the Clean Air Act from the PC-fired boilers

d. Calculation of monthly emissions of selenium from the PC-fired boilers

e. Calculation of monthly emissions of all other substances that are listed in section 112 of the Clean Air Act from the PC-fired boilers

f. Calculation of monthly emissions of all HAPs that are listed in Section 112 of the Clean Air Act from the auxiliary boiler

g. Monthly mercury emissions using data acquired by the Mercury [continuous emission monitoring system ("CEMS")]

h. Total HAPs emitted each month shall be calculated by adding the individual HAP emissions from Condition No. 8.27 (a) – (g)

(Ex. J023 at 000015-19.) Condition 8.27 does not include an equation or means of calculating or accounting for HAP emissions for sources other than the two PC-fired boilers and the auxiliary boiler. The equations in Condition 8.27 use site-specific emission factors, which will be derived, in part, from stack test results. Condition 8.27 does not require a margin of compliance or margin of safety to be added to the site-specific emission factors. (*See id.*)

20.

Condition 8.28 states:

> Within 180 days of the facility initial startup, the Permittee shall submit a detailed example of the records required by Condition No. 8.27. This report shall provide the information (including calculations) necessary to demonstrate how the Permittee will track and record emissions of HAPs from the facility.

(Ex. J023 at 000019.)

21.

Condition 8.29 provides: "The Permittee shall use the records required in Condition 8.27 to determine the total monthly emissions of each HAP and the total monthly emissions of all

HAPs emitted from the facility." (*Id.*) Using the calculations in Condition 8.27, Longleaf is required to notify EPD in writing if the emissions of any individual HAP exceed 0.83 tons from the facility, or if the emissions of all HAPs combined exceed 2.08 tons from the facility, during any calendar month. (Ex. J023 at 000019, Condition 8.29.) In other words, Longleaf is required to report to EPD if the monthly emissions of any single HAP or of the total of all HAPs exceed 1/12 of the 12-month limits.

22.

Pursuant to Condition 8.30:

> The Permittee shall use the calculations required by Condition No. 8.27 to determine the twelve-month rolling total emissions of each individual HAP from each month and the twelve-month rolling total combined HAP emissions for each month from the entire facility for each calendar month. The Permittee shall notify the division in writing if the combined HAP emissions from the entire facility equal or exceed 25 tons and/or any individual HAP emissions equal or exceed 10 tons during any consecutive twelve-month period. This notification shall be postmarked by the fifteenth day of the following month and shall include an explanation of how the Permittee intends to maintain compliance with the emission limit in Condition No. 2.25.

(Ex. J023 at 000019.)

23.

Neither the Permit nor the Permit Amendment contains any limitations on the amount of electricity that can be produced or on the number of hours that the main boilers can operate, or the amount of CAPP coal that can be burned. (Exs. J005, J023.) The Permit does include a provision limiting the maximum hourly heat input capacity of the main boilers to 6,139 MMBtu. (Ex. J005 at 000012.)

24.

Coal-fired power plants can potentially emit over 60 different HAPs. (Pet. St. 5 ¶ 14; Ex. J007 at 000006.) The HAPs that the Longleaf facility may emit can be grouped into four general

categories: (1) acid gases, which include HCl and HF; (2) mercury; (3) non-mercury metals, which include antimony, arsenic, beryllium, cadmium, cobalt, lead, manganese, nickel, and selenium; and (4) organics and cyanide compounds. (Ex. J012 at 000009-10; *see* Int. St. 2 ¶¶ 12, 20; *see also* Pet. St. 5 ¶¶ 40, 41, 95.)

25.

At the hearing, Petitioners presented no specific evidence concerning the emission limits for mercury or non-mercury metals. Instead, Petitioners focused their claim that the Permit Amendment lacks practically enforceable limits on two categories of HAPs: acid gases and organics. (Petitioners' Proposed Findings of Fact and Conclusions of Law at 17-18.)

***Acid Gas HAPs***

26.

The acid gas HAPs include HCl and HF. Of the over 60 different HAPs that can be emitted by coal-fired power plants, HCl and HF are emitted in the largest quantities. (Pet. St. 5 ¶ 14.)

27.

The emissions of HCl and HF will be controlled by dry scrubbers and high efficiency fabric filter "baghouses." (Ex. J005 at 000008; Int. St. 2 ¶ 17.) HF and HCl emissions will first be neutralized in the dry scrubbers through the injection of alkaline sorbent material (lime) into the flue gas stream. (Int. St. 2 ¶ 17.) As the flue gas passes through the high-efficiency fabric filter baghouses, additional amounts of acid gases will be neutralized and removed due to the lining of the fabric filter "bags" with the alkaline sorbent material and alkaline ash mixture. (*Id.*) The combination of the dry scrubbers with the high-efficiency fabric filter baghouses located

after the scrubbers in the pollution control train (instead of before the scrubbers as when a wet scrubber is used) results in a higher removal efficiency of acid gas HAPs. (*Id.*)

28.

Condition 2.25 limits the emissions of any HAP, including HCl and HF, to less than 10 tpy. (J023 at 000005.) Compliance with those limits will be determined by additional performance testing, monitoring, recordkeeping, emissions calculations, and reporting requirements. (*See* J023 at 000005-19.)

29.

The Permit Amendment requires stack testing for HCl and HF every quarter unless certain conditions are met.[18] (Ex. J023 at 000008-9.) Condition 4.1(m) specifies that Method 26A shall be used to determine the chlorine, fluorine, HF, and HCl emission rates from the PC-fired boilers, and that the minimum sampling time for each run shall be one hour. Additionally, the percent removal of HCl and HF must be calculated at the time of the test. (Ex. J023 at 000006, Condition 4.1(m).) During the stack tests, the rate at which the sorbent material is injected ("sorbent injection rate") into the dry scrubber for each PC-fired boiler must be monitored continuously and recorded at least every 15 minutes. (Ex. J023 at 000008-09, Conditions 4.2(d), (g)-(h).) The rate that reflects the best operating range (i.e., removal efficiency) of the scrubber must be reported to EPD. (Ex. J023 at 000008-09, Conditions 4.2(d), (g)-(h); Res. St. 2 ¶ 41.)

[18] For example, if the 12-month rolling totals of HCl or HF emissions are below 9.0 tons at the completion of the calendar months of December, March, or June, then the next quarterly test (first, second or third) is not required. (Ex. J023 at 000009.) The fourth quarterly test for HCl and HF will always be required regardless of the emissions that are recorded during the preceding 12-month period. (*Id.*) In other words, if the 12-month rolling totals of the calculated HCl and HF emissions are less than 9.0 tons at the end of each quarter, then only an annual stack test will be required.

30.

Longleaf is required to monitor the sorbent injection rate for each dry scrubber using a reagent feed monitoring device that is certified to be accurate. (Ex. J023 at 000011, Condition 5.2(i); Res. St. 2 ¶ 44.) Additionally, Longleaf must operate the scrubber within the sorbent injection range set at the time of the performance test.[19] (Res. St. 2 ¶ 44.) These monitoring and operating requirements will provide assurance that the scrubbers are operating properly and in a manner that ensures optimum reduction of HCl and HF from the flue gas. (Res. St. 2 ¶¶ 41, 44; Tr. 534.)

31.

HCl emissions and HF emissions are, in part, a function of the chlorine and fluorine content in the coal. (Tr. 461; Ex. RI08 at 000030 & 000036; Pet. St. 5 ¶¶ 129-141; Int. St. 2 ¶ 17; Res. St. 2 ¶ 58.) Condition 8.3 requires Longleaf to obtain a representative sample of the coal that it fires each day and analyze it for, among other things, the chlorine content, fluorine content, and Gross Caloric Value (GCV). (Ex. J023 at 000012.) The Permit Amendment specifies that the analyses of the chlorine and fluorine contents must be performed using Test Methods ASTM D6721 and ASTM D5987, respectively, or some other test methods approved by EPA and acceptable to EPD. (Ex. J023 at 000007.)

32.

Longleaf is required to use the results of the coal sampling and the stack test results to determine the removal efficiency for HCl and HF (as well as selenium), and to calculate the monthly emissions. (*Id.*) Conditions 8.27(a) and 8.27(b) contain the equations to calculate the

[19] Condition 8.25(c)(ii) provides that "[a]ny 3-hour block average that the dry scrubber (APCD ID; DS1 or DS2) sorbent injection rate is less than the level established using the data from the most recent performance test for HCl and/or HF" is considered an excursion which must be reported. (Ex. J023 at 000012-14.)

monthly HCl and HF emissions from the boilers.[20] (Ex. J023 at 000015-16.) Additionally, Condition 8.27 requires Longleaf to keep records of all its calculations for five years. (Ex. J02 at 000015.)

33.

At this time, the Permit Amendment does not require a CEMS for HCl or HF. Although such systems exist, they are not currently able to accurately or meaningfully collect data when the concentration of HCl and HF in the flue gas stream is as low as it is expected to be at Longleaf. (Res. St. 2 ¶ 45; Tr. 396-99.)

34.

As of the date of the hearing, neither an HCl nor an HF CEMS had been installed on a coal-fired power plant in the United States to determine compliance with permit requirements.[21] (Res. St. 2 at ¶ 45; Tr. 399-400.) HCl CEMS have been installed in the United States on municipal waste incinerators for the purpose of determining compliance. However, at those facilities, the CEMS are able to measure HCl emissions because the chlorine content in the waste is higher. (Tr. 400-01.)

35.

Condition 5.2(h) requires Longleaf to install a CEMS for HCl and/or HF "[i]f at any time prior to the commencement of operations of the facility, [EPD] determines that a [CEMS] exists that can reliably and accurately measure [HCl] and/or [HF] emissions from the PC-fired boilers in the operating concentrations required by this permit." (Ex. J023 at 000011.)

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[20] The equations rely on the average daily chlorine and fluorine content, the percent removal, and the hourly heat input to calculate the respective HCl and HF emissions. (Ex. J023 at 000015-16.) Condition 8.27 also contains equations to calculate the monthly emissions of non-mercury metals from the boilers and the monthly emissions of all HAPs from the auxiliary boiler. (Ex. J023 at 000017-19.)

[21] Currently, the Spurlock plant in Kentucky is the only coal-fired power plant in the United States that has installed an HCl CEMS. However, it is not used to determine compliance. (Tr. 399-400.)

36.

The Permit Amendment also contains specific emission limits for HCl and HF. (Ex. J023 at 000003-4, Conditions 2.15(o) & (k).) Theses limits are not intended to, and do not, limit emissions of HCl and HF to levels below the major source thresholds. (Res. St. 2 ¶ 42; Pet. St. 5 ¶¶ 34-35; Tr. 526.) Rather, they were retained after the previously issued Notice of MACT Approval, and serve only as upper ceiling limits. (Res. St. 2 ¶ 42.)

37.

The Permit requires Longleaf to install and operate CEMS for emissions of sulfur dioxide ("$SO_2$") and particulate matter ("PM") filterable, among others, from the PC-fired boilers. The $SO_2$ and PM filterable CEMS will provide information regarding how the dry scrubber and fabric filter baghouse are performing. (Res. St. 2 ¶ 59; *see generally* Int. St. 2 ¶ 37(e).) In addition, the $SO_2$ and PM filterable CEMS will be operating during the stack testing for HAPs. Based on the data from the stack tests and these CEMS, Longleaf can derive a correlation between emissions of $SO_2$, PM filterable, and HAPs, and the operation of the dry scrubber and fabric filter baghouse. (Res. St. 2 ¶ 59; *see also* Tr. 459-60.) Further, $SO_2$, HCl, and HF are removed by similar chemical and physical mechanisms; thus, monitoring $SO_2$ via a CEMS will provide an indirect indication of HCl removal.[22] (Tr. 459-60; Ex. RI008 at 000032.)

38.

The permit allows Longleaf to burn either PRB coal (also known as "subbituminous" coal) or low-sulfur CAPP coal (also known as "bituminous" coal). (Ex. J005 at 000009; Res. St. 2 ¶ 58.) CAPP coal has significantly higher chlorine content. (Res. St. 2 ¶ 58.) The Permit Amendment does not limit the amount of CAPP coal that Longleaf can burn. (Ex. J023; Res. St.

[22] In fact, Condition 8.25(c)(i) provides that "[a]ny exceedance of the filterable PM emission limit and/or $SO_2$ limits in Condition 2.15 are an excursion for HF and HCl" and must be reported. (Ex. J023 at 000012-14.)

2 ¶ 58.) However, Longleaf acknowledges that by becoming a synthetic minor source and accepting such limits, it will be significantly limited in the amount of CAPP coal it can burn. (Ex. J014 at 000004.)

***Organic HAPs***

39.

The organic HAPs are comprised of semi-volatile organics, volatile organics, dioxins and furans, and cyanide compounds.[23] (Int. St. 2 ¶ 20.) These emissions usually result from incomplete combustion and are most effectively controlled by good combustion practices. (Int. St. 2 ¶ 20.) Longleaf will minimize organic HAP emissions by carefully controlling the fuel-to-air ratio and residence time, temperature, and turbulence of the fuel and air mixture (i.e., the "Three T's") within the boilers.[24] (*Id.*)

40.

Condition 2.25 limits the emissions of any HAP, including the individual organic HAPs, to less than 10 tpy. (Ex. J023 at 000005.) Compliance with those limits will be determined by additional performance testing, monitoring, recordkeeping, emissions calculations, and reporting requirements. (*See* J023 at 000005-19.)

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[23] It is unclear from the evidence in the record whether the cyanide compounds are truly organic HAPS; however, the parties have included the cyanide compounds within the organic HAPs analysis. (*Int. St.* ¶ 20; *see* Pet. St. 5 ¶ 40.)

[24] EPA recognizes the connection between good combustion and the control of organic emissions from boilers. The federal agency has used carbon monoxide (CO) as a surrogate MACT emission limit for certain organic HAPs, such as dioxins and furans, from boilers that burn hazardous waste. *See e.g.*, 40 C.F.R. § 63.1216(b)(1). Petitioners also apparently recognize a correlation between CO and certain organic HAPs. (See Petition for Hearing ¶ 43, in which Petitioners propose CO as a surrogate for non-dioxin/furan organic HAPs.) To be clear, the Permit Amendment does not rely on surrogacy. (Tr. 148.) Rather, EPD merely recognizes the relationship between good combustion practices and the minimization of CO and organic HAPs. (Res. St. 2 ¶ 54.) The Permit Amendment requires Longleaf to install a CO CEMS. (Ex. J023 at 000010, Condition 5.2.b.) The CO CEMS will provide data regarding the amount of CO formed in the boiler. (Res. St. 2 ¶ 54.) By employing good combustion practices, Longleaf can minimize CO and organic HAPs. (*Id.*; Tr. 82-83, 528-529.) Thus, by monitoring the CO CEMS, Longleaf can gauge how efficiently the boiler is operating, and indirectly how well the boiler is minimizing organic HAPs. (*See* Res. St. 2 ¶ 54; *see also* Tr. 82-83.)

41.

The Permit Amendment requires stack testing for volatile organic HAPs, semi-volatile organic HAPs, hydrogen cyanide, phosphorus, dioxins, and furans once every five years or as requested by EPD.[25] (Ex. J023 at 000009.) EPD required less frequent stack testing for organic HAPs, as opposed to the acid gas HAPs, because the emissions of the organic HAPs are not expected to vary as much, as they will be minimized through good combustion control in the boilers. (Tr. 408-09, 520-22.)

42.

Condition 4.1(v) specifies that Longleaf must use Method 0031 to determine the emission rates of volatile organic HAPs, Method 0010 to determine the emission rates of semi-volatile organic HAPs, and Method EPA CTM 033 to determine the emissions rates of hydrogen cyanide. (Ex. J023 at 000007, Condition 4.1(v).) The minimum sampling time for each run shall be one hour. (*Id.*) The Permit Amendment also provides that "[m]inor changes in methodology may be specified or approved by the Director . . . when necessitated by process variables, changes in facility design, or improvement or corrections, which . . . render those methods or procedures . . . more reliable." (Ex. J023 at 000007.)

43.

However, EPA Methods 0031 and 0010 do not reliably measure all organic HAPs. (Pet. St. 5 ¶ 56.) In particular, these methods do not reliably measure acetaldehyde, acrolein, formaldehyde, methyl chloride (chloromethane), and dioxins and furans. (*Id.* at ¶¶ 56-62.) The potential emissions of these five organic HAPs could be as much as 5.34 tpy. (*Id.* at ¶¶ 65-66.)

[25] All parties acknowledge that a CEMS for organic HAPs currently does not exist. (Tr. 146, 159, 524.) The parties appear to agree that the only means to directly measure organic HAPs from the boilers is to perform a stack test; however, they disagree as to the necessary frequency and parameters of the tests. (*Id.*; *see also* Pet. St. 5 ¶ 49; Tr. 408-09, 520-22.)

In other words, the emission calculation for organic HAPs could miss up to 5.34 tpy of organic HAPs.[26] (*Id.*)

44.

Although EPA has specified Methods 0031 and 0010 for the broad categories of volatile organic HAPs and semi-volatile organic HAPs, respectively, it has also recommended different methods for certain organic HAPs, such as formaldehyde and dioxins and furans. (Ex. J029 at 000036.) In its 2009 Information Collection Request ("ICR") to electric utilities, EPA recommended Method 320 or RCRA Method 0011 for formaldehyde and Method 23 for dioxins and furans. (*Id.* at 000036-37.)

***Other Sources of HAPs***

45.

As noted above, Condition 8.27 does not provide a separate equation or means to calculate or account for emissions from sources other than the two main boilers and the auxiliary boiler. EPD and Longleaf describe the HAP emissions from other sources, such as the emergency generator, the firewater pump, and the storage tanks as insignificant or *de minimus*. (Tr. 567-68; Int. St. 2 ¶¶ 43-44.) The HAP emissions from the emergency generator and the firewater pump are not expected to exceed 0.013 tpy. (Res. St. 2 ¶ 36; Ex. J015 at 000009.) The anticipated total volatile organic compound emissions from the five storage tanks are 0.133 tpy. Based on these numbers, EPD did not feel the need to include any additional recordkeeping requirements in the permit. (Res. St. 2 ¶ 36.)

[26] Condition 8.27(e) contains the equation used to calculate the organic HAPs from the PC-fired boilers. One of the variables in that equation is the emission factor derived from the stack testing. (Ex. J023 at 000018.) Because the test methods specified for these five organic HAPs will not reliably measure their emissions, the emission factor derived from the stack testing will not likely be accurate, and thus the emission calculations will not likely be accurate.

**Conclusions of Law**

1.

The hearing in this matter was *de novo* in nature. The evidence was not limited to the evidence presented to or considered by the referring agency prior to its decision. Ga. Comp. R. & Regs. r. 616-1-2-.21(3). The Georgia Court of Appeals recently articulated the standard of review that this Tribunal must apply as follows: "to consider the applicable facts and law anew, without according deference or presumption of correctness to the EPD's decision, and to render an independent decision on whether the [Petitioners] carried their burden to prove by the preponderance of the evidence that the permit should not have been issued." *Longleaf Energy Assocs. v. Friends of the Chattahoochee, Inc.*, 298 Ga. App. 753, 768 (2009).

2.

Petitioners are challenging EPD's issuance of the Permit Amendment to Longleaf. Therefore, Petitioners bear the burden of proof. *See* Ga. Comp. R. & Regs. r. 616-1-2-.07(1)(b) ("a party challenging the issuance . . . of a license who is not the licensee shall bear the burden [of proof]"). Specifically, Petitioners must "prove by the preponderance of the evidence that the [Permit Amendment] should not have been issued." *Longleaf Energy Assocs.*, 298 Ga. App. at 768; Ga. Comp. R. & Regs. r. 616-1-2-.21(4).

***Regulation of Hazardous Air Pollutants Under the Clean Air Act and the Georgia Air Quality Act***

3.

Congress enacted the Clean Air Act "to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population." 42 U.S.C. § 7401(b)(1).

4.

Hazardous air pollutants, or HAPs, are regulated under section 112 of the Clean Air Act, which Congress added to the Clean Air Act in 1970. 42 U.S.C. § 7412; *New Jersey v. EPA*, 517 F.3d 574, 578 (2008). "In its original form, section 112 required EPA to list [those] HAPs that should be regulated because they could 'cause, or contribute to, an increase in mortality or an increase in serious irreversible[] or incapacitating reversible[] illness.'" *Id.* (quoting Pub. L. No. 91-604, 84 Stat. 1676, 1685 (1970); *see also Nat'l Mining Ass'n v. EPA*, 59 F.3d 1351, 1353 n.1 (1995). "For such pollutants, EPA was to institute emission standards that provided for 'an ample margin of safety to protect the public health.'" *Nat'l Mining Ass'n*, 59 F.3d at 1353 n.1.

5.

EPA made only limited progress, however, in listing and regulating HAPs because the Act imposed "unrealistic time frames" and there was substantial "scientific uncertainty over which substances posed a threat to public health." *Natural Res. Def. Council v. EPA*, 529 F.3d 1077, 1079 (D.C. Cir. 2008) *("NRDC")*. As a result, "EPA only listed eight pollutants as hazardous between 1970 and 1990." *Id.* (citing *Sierra Club v. EPA*, 353 F.3d 976, 979 (D.C. Cir. 2004)); *New Jersey v. EPA*, 517 F.3d at 578.

6.

Congress became concerned with EPA's slow pace of HAP regulation and, as a result, revised section 112 in 1990 as part of its comprehensive overhaul of the Clean Air Act. The 1990 amendments adopted a new regulatory approach for HAPs, which replaced EPA's health-based regulation with a detailed, technology-based regulatory scheme. *Nat'l Mining*, 59 F.3d at 1352-53; *NRDC*, 529 F.3d at 1079.

7.

The 1990 amendments fundamentally changed the regulation of HAP emissions.

First, Congress replaced the original "chemical-by-chemical," risk-based listing process with § 112(b), which contained a statutory list of 189 HAPs that EPA is required to regulate.[27] *Nat'l Mining*, 59 F.3d at 1353; 42 U.S.C. § 7412(b)(1).

Second, Congress required EPA to "publish . . . a list of all categories and subcategories of major sources" that emit one or more of the HAPs listed in section 112(b).[28] 42 U.S.C. § 7412(c)(1). For purposes of section 112, "a 'category' of sources is a group of sources having some common features suggesting that they should be regulated in the same way and on the same schedule." 57 Fed. Reg. 31,576, 31,578 (July 16, 1992).

Third, Congress directed EPA to promulgate regulations establishing technology-based "emission standards," considering "the best available control technology to control emissions for each category of major sources that emits one or more of the listed hazardous air pollutants." *NRDC*, 529 F.3d at 1079 (footnote omitted); 42 U.S.C. § 7412(d)(1). These emission standards are to reflect

> the maximum degree of reduction in emissions of [HAPs] . . . that the Administrator, taking into consideration the cost of achieving such emission reduction, and any non-air quality health and environmental impacts and energy requirements, determines is achievable for new or existing sources in the category or subcategory to which such emission standard applies. . . .

42 U.S.C. § 7412(d)(2). This level of control, which is intended to achieve "the maximum degree of reduction in emissions," is commonly referred to as the "maximum achievable control

[27] The list of regulated HAPs is codified at 42 U.S.C. § 7412(b)(1). Section 112(b)(2) requires that EPA "periodically review the list" and "publish the results thereof and, where appropriate, revise such list by rule, adding pollutants." 42 U.S.C. § 7412(b)(2). Consistent with this direction, EPA has revised the statutory list of HAPs, which presently contains 191 different substances. *NRDC*, 529 F.3d at 1079.

[28] Although not relevant to the issues here, the 1990 amendments also required EPA to list categories and subcategories of "area sources," which are stationary sources that do not meet the definition of a "major source," if EPA finds that they individually or collectively "present[] a threat of adverse effects to human health or the environment . . . warranting regulation under [§ 112]." 42 U.S.C. § 7412(c)(3).

technology," or "MACT," standard.[29] *Sierra Club v. EPA*, 551 F.3d 1019, 1021 (D.C. Cir. 2008). Section 112 mandates that both new and existing major sources of HAPs comply with MACT standards. For new sources, MACT must be at least as stringent as "the emission control that is achieved in practice by the best controlled similar source." 42 U.S.C. § 7412(d)(3). For existing sources, MACT generally may not be less stringent than "the average emission limitation of the best performing 12 percent of the existing sources" in the source category. *Id.* § 7412(d)(3)(A).

8.

For EGUs, Congress took a different approach. Rather than requiring regulation of these sources from the outset, Congress required EPA to "perform a study of the hazards to public health reasonably anticipated to occur as a result of [HAP] emissions" from these sources, and to report those findings to Congress within three years. 42 U.S.C. § 7412(n)(1)(A). It also provided that EPA should regulate HAP emissions from EGUs under section 112 only if, based on that report, EPA determined that regulation was "appropriate and necessary." *Id.* This report, commonly referred to as the "Utility Report to Congress," was submitted to Congress in 1998 and concluded that mercury emissions from industrial sources may increase methyl mercury concentrations in fish and that "mercury emissions from [EGUs] may add to the existing environmental burden." (*See* EPA, Office of Air Quality Planning and Standards, Study of Hazardous Air Pollutant Emissions from Elec. Util. Steam Generating Units—Final Report to Cong. (1998) (Ex. J026 at 000047, 000050).)[30] Based on this report, EPA determined that

[29] The 1990 amendments further require EPA to review any residual health risks that had not been eliminated by the initial technology-based standards and, if necessary, to revise the standards based on a medical assessment of a given pollutant's health risks. 42 U.S.C. § 7412(f); *see also* 42 U.S.C. § 7412(f)(2) (providing that, after eight years, EPA is to revisit and potentially revise the emissions standards for each source category to ensure that they "provide an ample margin of safety to protect public health"); *NRDC*, 529 F.3d at 1080 (same).

[30] Available at: <www.epa.gov/ttn/caaa/t3/reports/eurtc1.pdf>.

regulation of HAPs from EGUs was warranted. Regulatory Finding on the Emissions of Hazardous Air Pollutants From Electric Utility Steam Generating Units, 65 Fed. Reg. 79,825, 79,826 (Dec. 20, 2000). As a result, the source category for Coal- and Oil-Fired EGUs was added to the list of source categories under section 112(c). National Emission Standards for Hazardous Air Pollutants: Revision of Source Category List Under Section 112 of the Clean Air Act, 67 Fed. Reg. 6521, 6522, 6524 (Feb. 12, 2002). Although EGUs were temporarily removed from the list of regulated sources by EPA rule, the D.C. Circuit's 2008 decision in *New Jersey v. EPA* invalidated the delisting rule and thus triggered the need for a case-by-case MACT determination for Longleaf. *New Jersey v. EPA*, 517 F.3d at 581-84.

9.

At present, EPA has not issued final source category MACT emission standards for coal- and oil-fired EGUs. As noted above, however, *New Jersey v. EPA* again placed EGUs on the list of sources regulated under section 112 and, as a result, EPA is required by law to develop emission standards for the coal- and oil-fired EGU source category. *Id.* at 583-84. EPA is currently in the process of developing these standards.[31] Until that process is completed, however, EGUs that qualify as major sources of HAPs must undergo a "case-by-case" MACT analysis. 42 U.S.C. § 7412(g)(2)(B).

10.

Pursuant to its authority under the Georgia Air Quality Act and the federally approved "State Implementation Plan" ("SIP"), EPD issues federally enforceable state permits that meet the requirements of § 112 and EPA's implementing regulations. *See* Ga. Comp. R. & Regs. r.

[31] Pursuant to a consent decree, EPA was required to publish proposed emissions standards no later than March 16, 2011, and final emission standards no later than November 16, 2011. *American Nurses Ass'n. v. EPA*, No. 08-2198 (RMC), 2010 U.S. Dist. LEXIS 37634 at *5, 7 (D.D.C. Apr. 15, 2010). The proposed emission standards have been signed by the EPA Administrator and appear at <www.epa.gov/airquality/powerplanttoxics/pdfs/proposal.pdf>. But, as of the date of this decision, they have not been published in the Federal Register.

391-3-1-.02(9)(a)-(b)16; Approval and Promulgation of Implementation Plans Georgia: Approval of Revisions to Minor Source Permit Regulations, 60 Fed. Reg. 45,048 (Aug. 30, 1995). Accordingly, a permit that is issued in compliance with the Georgia rules and regulations governing the emissions of HAPs meets all applicable requirements under the federal Clean Air Act.

11.

Different regulatory requirements apply to "major sources" and "minor sources"[32] of HAPs within the same source category. Major sources of HAPs are generally subject to stricter regulatory control and more burdensome permitting requirements than are minor sources. For example, major sources must comply with MACT standards. 42 U.S.C. § 7412(d)(1)-(2). Additionally, section 112(g) generally conditions the modification, construction or reconstruction of a major source on the source's meeting MACT emission limitations. 42 U.S.C. § 7412(g). Furthermore, in order to obtain an operating permit under Title V of the Clean Air Act, major sources must comply with extensive monitoring, reporting, and recordkeeping requirements. 42 U.S.C. §§ 7661- 7661f.

12.

In contrast to major sources, minor sources of HAPs are not necessarily subject to such stringent regulation. Most significantly, a "minor source" of HAPs is not required to undergo the case-by-case MACT analysis that is presently required prior to construction of any new major source of HAPs. *See* 42 U.S.C. § 7412(g)(2)(B) (requiring a case-by-case MACT analysis for "major" sources); *see also* 40 C.F.R. § 63.43 (explaining MACT determinations for constructed and reconstructed major sources). As the D.C. Circuit has explained:

[32] The Clean Air Act requirements for criteria pollutant programs refer to non-major sources as "minor sources," while the HAP provisions in section 112 refers to non-major sources as "area sources." EPA has used these terms interchangeably. Throughout this Decision, the Undersigned will use the term "minor source."

> EPA need not list all "categories and subcategories" of [minor] sources, 42 U.S.C. § 7412(c)(3), and it does not have to establish emission standards for unlisted [minor] sources, 42 U.S.C. § 7412(d)(1). For listed [minor] sources, EPA may choose to promulgate emission standards requiring only "generally available control technologies or management practices." 42 U.S.C. § 7412(d)(5). These standards can be less rigorous than those required for major sources under 42 U.S.C. § 7412(d)(1). [Minor] sources are not subject to title V permitting requirements, or to § 112(g)'s restrictions on modification, construction and reconstruction of their facilities.

*Nat'l Mining*, 59 F.3d at 1353-54 (footnote omitted).

13.

Whether a source is a "major source" or a "minor source" of HAPs depends on whether HAP emissions from the facility will exceed specified threshold emissions levels. 42 U.S.C. § 7412(a)(1)-(2). For purposes of section 112, a "major source" is defined as

> any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants.

*Id.* § 7412(a)(1); 40 C.F.R. §§ 63.2, 63.41.

14.

"Minor sources" of HAPs are defined as "any stationary source . . . that is not a major source." 42 U.S.C. § 7412(a)(2); 40 C.F.R. §§ 63.2, 63.41. Thus, a minor source of HAPs is any source with the potential to emit less than 10 tpy of any HAP, and less than 25 tpy of any combination of hazardous air pollutants.

15.

As the definition of major source makes clear, whether a source is a major source or a minor source depends primarily on its "potential to emit" HAPs.[33] Thus, a facility that has the

[33] There is an exception to the requirement that "major source" status be determined based on potential, rather than actual, emissions. As the D.C. Circuit explained in *National Mining*,

potential to emit 10 tpy or more of any single HAP, or 25 tpy or more of all HAPs combined, will be classified as a major source of HAPs even if its actual emissions may be less than the specified levels.

16.

The Georgia regulations define a facility's "potential to emit" as:

> the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the stationary source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable.

40 C.F.R. §§ 63.2, 63.41 (incorporated by reference at Ga. Comp. R. & Regs. r. 391-3-1-.02(9)(a)-(b)16).

17.

When a source voluntarily elects to accept federally and practically enforceable permit conditions to limit its potential to emit, it is known as a "synthetic minor source." *See* Ga. Comp. R. & Regs. r. 391-3-1-.01(cccc) (explaining that a "synthetic minor permit" is "a permit issued to a facility which imposes federally enforceable limits to restrict potential emissions to below major source thresholds"); (*see also* Ex. J024-000004 (stating that if enforceable permit limits are incorporated into a facility's Air Quality Permit to reduce its potential emissions, the

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> Major source requirements also apply to those sources with emissions that *actually* exceed the major source thresholds. For a source in compliance with emissions limitations -- whether federal, state or local -- "potential to emit" will exceed actual emissions, and the "potential to emit" figure will determine whether the source is major. However, should a source claim to have lowered its emissions below major source levels, but fail to conform to that claim, it will nonetheless be a major source if its actual emissions exceed the designated thresholds. A major source that fails to observe applicable requirements is subject to sanctions under § 113 of the Act, 42 U.S.C. § 7413.

*Nat'l Mining*, 59 F.3d at 1364 n.20 (emphasis in original).

facility "would then become a Synthetic Minor Source").).[34] To be federally enforceable, the limitations, controls, and requirements in the permit must also be "enforceable as a practical matter." Ga. Comp. R. & Regs. r. 391-3-1-.03(2)(h); 60 Fed. Reg. 45,048, 45,049 (Aug. 30, 1995); (Ex. J024-000014 (stating that a facility may choose to take practically enforceable limits to avoid being a major source). Therefore, a synthetic minor source permit must include conditions that are both federally and practically enforceable.

***Federal Enforceability***

18.

In order for a permit issued by a state agency to be federally enforceable, the state's permitting program must: (1) be approved into the State Implementation Plan ("SIP"); (2) impose legal obligations to conform to the permit limitations; (3) provide for limits that are enforceable as a practical matter; (4) be issued in a process that provides for review and an opportunity for comment by the public and by EPA; and (5) ensure that there is no relaxation of otherwise applicable federal requirements. *See* Requirements for the Preparation, Adoption, and Submittal of Implementation Plans; Approval and Promulgation of Implementation Plans, 54 Fed. Reg. 27,274 (June 28, 1989); (Ex. J035-000003-04).

19.

EPA has reviewed Georgia's permitting program and determined that it meets each of the five requirements, as well as the requirements of 42 U.S.C. § 7412(*l*). *See* Approval and

[34] There are three different types of sources subject to regulation under the Georgia Air Quality Act, the Georgia Regulations, and the Clean Air Act: (1) *Major sources*—those facilities that actually emit major amounts of air pollutants, or have the potential to do so; (2) *"True minor" sources*—those facilities that do not have the physical or operational capacity to emit major amounts (even if the source owner and regulatory agency disregard any enforceable limitations); and (3) *"Synthetic minor" sources*—those facilities that have the physical and operational capability to emit major amounts, but are not considered major sources because the owner or operator has accepted enforceable limitations. (*See* Ex. J024 at 000003-04.)

Promulgation of Implementation Plans Georgia: Approval of Revisions to Minor Source Permit Regulations, 60 Fed. Reg. 45,048-49 (Aug. 30, 1995).

20.

Although the Petition alleges that the Permit Amendment is not federally enforceable, Petitioners' evidence and argument is limited to the question of whether the Permit Amendment establishes limits that are enforceable as a practical matter. Petitioners have not seriously contended that the other requirements for federal enforceability are not met, and this Tribunal concludes that they are satisfied.

***Practical Enforceability***

21.

Any number of permit conditions can limit a facility's PTE. As the EPD Guidance explains, potential permit conditions that will suffice to limit a facility's potential to emit:

> would include a limitation on the operation, production, emission rate, or air pollution control equipment, from the emissions unit. These permit conditions may include *direct emission limits*, limits on hours of operation, limits on amount of raw material processed, limits on amount of finished product produced, limits on amount or type of material combusted, or requirements for the operation of specific air pollution control equipment. However, in order for these permit conditions to effectively limit the potential emissions from the source the conditions must be "Practically Enforceable."

(Ex. J024-000014 (emphasis added).)

22.

The EPD Guidance expressly allows a facility like Longleaf to limit its PTE (and to be a synthetic minor source) by accepting a "specific . . . 12 month rolling total emission limit" established by "practically enforceable" permit conditions. (Ex. J024 at 0000007, ¶ 1.) In that situation, the "specific . . . 12 month rolling total emission limit" is considered the facility's PTE for purposes of determining whether the facility is a major or minor source. (*Id.*) EPD's

determination of Longleaf's potential to emit HAPs is entirely consistent with its own guidance. The EPD Guidance expressly provides that a practically enforceable permit limit may be used to limit a facility's PTE. (Ex. J024 at 0000007 B-1, ¶ 1.)

23.

"Practically enforceable permit limits form the basis of Georgia's Synthetic Minor Source Permitting program." (Ex. J024 at 000004.) According to the EPD Guidance, a permit limit is enforceable as a practical matter (or practically enforceable) if the following three requirements are met.

- First, the permit conditions must "establish a clear legal obligation for the source and allow compliance to be verified." (*Id.* at 000014.)
- Second, the permit conditions must be "unambiguous" and must not "contain language which may intentionally or unintentionally prevent enforcement." (*Id.*)
- Third, where permit limits are used to limit a facility's potential to emit, the permit must include "associated monitoring, recordkeeping, and reporting [requirements to] make it possible to verify compliance and provide for documentation of noncompliance." (*Id.*)

24.

Petitioners argue that the "blanket limits" contained in Condition 2.25 are not practically enforceable, in part, because they do not include operational or production limits, such as limits on hours of operation or limits on amount or type of material to be combusted.[35] In support of their argument, Petitioners rely on *United States v. Louisiana-Pacific Corp.*, 682 F. Supp. 1122 (D. Colo. 1987), and a 1989 EPA guidance document. Neither authority is binding on this Tribunal. Moreover, these authorities are unpersuasive.

[35] Petitioners also argue that when a permit does not contain operational or production limits, to be practically enforceable, the "blanket" emission limit must be short-term and the permit must require the use of a CEMS to verify compliance.

25.

*Louisiana-Pacific* is clearly distinguishable from the facts of this case. *Louisiana-Pacific* was a civil enforcement action brought by EPA. 682 F. Supp. at 1124. In particular, EPA asserted that Louisiana-Pacific failed to obtain PSD permits prior to constructing two waferwood plants in Colorado. *Id.* Louisiana-Pacific applied for state air emission permits for plant 1 in June of 1983 and plant 2 in October of 1983. *Id.* at 1125. It commenced construction on plant 1 in July 1983 and on plant 2 in November 1983. *Id.* The state permits for plant 1 were issued on January 3, 1984 and April 29, 1985, and limited the emissions from all sources to levels below major stationary source thresholds. *Id.* The state permits for plant 2 were issued in September of 1984 and amended in May of 1985. *Id.* Those permits also limited the emissions to levels below major stationary source thresholds. *Id.* In March of 1985, Louisiana-Pacific conducted stack tests on both plants. *Id.* Based on the results of the stack tests, EPA ultimately concluded that both plants were major stationary sources within the meaning of the PSD regulations, and, therefore, Louisiana-Pacific should have obtained PSD permits prior to commencing construction. *Id.* at 1125-27.

26.

In response to EPA's claims, Louisiana-Pacific argued that the two plants could not have been major stationary sources, because the state permits limited emissions to levels below the major stationary source threshold. *Id.* at 1129. The court found Louisiana-Pacific's argument unavailing for several reasons. Primary among those reasons was the fact that the state permits were not in existence at the time of the violations (i.e., commencement of construction). *Id.* at 1130. Additionally, the court found that even if the state permits had been in effect at the time the violations occurred, Louisiana-Pacific's construction of "potential to emit" was unacceptable.

In particular, the court concluded that "blanket restrictions on actual emissions" were not properly considered in a source's calculated potential to emit because, among other reasons, the court believed them to be "virtually impossible to verify or enforce." *Id.* at 1133.[36]

27.

There is no indication that the state permits in *Louisiana-Pacific* included compliance and reporting requirements in addition to the "blanket" emission limits. *See id.* In contrast to the state permits in *Louisiana-Pacific*, the Permit Amendment in this case contains numerous compliance, reporting, and recordkeeping provisions that will, in all respects except two discussed below, allow EPD to verify compliance and enforce the limits. Thus, as a general proposition, the compliance and enforcement concerns expressed by the court in *Louisiana-Pacific* do not exist in this case.

28.

Petitioners' reliance on guidance issued by EPA in 1989 following the *Louisiana-Pacific* decision is similarly misplaced.[37] That guidance, which was written in the context of New Source Review permitting (relating to criteria pollutants, not HAPs), expressly provides that "any permit limitation can legally restrict potential to emit if it meets two criteria: 1) it is federally enforceable . . . and 2) it is enforceable as a practical matter." 1989 EPA Guidance Document at 2. Although that guidance appeared to take a more rigid approach and provided examples of "restrictions on production or operation that [could] limit potential to emit

[36] The court contrasted operational and production limits with the "blanket limits" on emissions. In doing so, the court noted that compliance with restrictions on hours of operation or on the amount of material combusted "could easily be verified through the testimony of officers, all manner of internal correspondence, and accounting, purchasing, and production records." *United States v. Louisiana-Pacific Corp.*, 682 F.Supp. 1122, 1133 (D. Colo. 1987).

[37] The June 13, 1989 guidance document was transmitted by a memorandum authored by Terrell E. Hunt and John S. Seitz, bearing the subject line: "Guidance on Limiting Potential to Emit in New Source Permitting." The actual guidance document is entitled "Limiting Potential to Emit in New Source Permitting" ("1989 EPA Guidance Document"). It can be found at <http://www.epa.gov/region07/air/title5/t5memos/lmitpotl.pdf>.

includ[ing] limitations on quantities of raw materials consumed, fuel combusted, hours of operation, or conditions which specify that the source must install and maintain controls that reduce emissions to a specified emission rate or to a specified efficiency level," it also expressly recognized exceptions where such physical or operational limits would not be required. *Id.* at 6; *see id.* at 7-8 (explaining that if a permitting authority found it infeasible to set operating parameters, the permit could effectively limit potential to emit by including short-term emission limits and the operation of a CEMS, or for VOCs by calculating daily emissions).[38]

29.

Since the 1989 guidance was issued, EPA has issued additional guidance addressing limitations on a facility's PTE. This additional guidance makes clear that "[t]here is no single 'one size fits all' mechanism that would be appropriate for creating federally enforceable limitations on potential emissions for all sources in all situations."[39] (Ex. J035 at 000003.)

30.

As EPA has explained in rejecting challenges to a synthetic minor permit on grounds that it did not contain "physical or operational limitations" like those discussed in the 1989 guidance,

[38] EPA's 1989 guidance was drafted in the context of criteria pollutants at issue in new source review permitting. Criteria pollutants are distinct from HAPs. 40 C.F.R. § 52.31(b)(4) ("*Criteria pollutant* means a pollutant for which the Administrator has promulgated a national ambient air quality standard pursuant to 42 U.S.C. 7409 (i.e., ozone, lead, sulfur dioxide, particulate matter, carbon monoxide, nitrogen oxide)"); *See* 42 U.S.C. §§ 7412(a)(6) & (b) (listing the hazardous air pollutants, which are distinct from the criteria pollutants). The Permit Amendment at issue here concerns HAP emissions; accordingly, some of the EPA assumptions employed in the context of new source review—such as the availability of CEMS to monitor the criteria pollutants—do not apply in the context of certain HAPs for which no CEMS is currently available.

[39] According to EPA's more recent guidance,

> [Practical] enforceability for a source-specific permit means that the permit's provisions must specify: (1) A technically-accurate limitation and the portions of the source subject to the limitation; (2) the time period for the limitation (hourly, daily, monthly, and annual limits such as rolling annual limits); and (3) the method to determine compliance including appropriate monitoring, recordkeeping, and reporting.

(Ex. J035 at 000005-6); *see also* Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NSR): Baseline Emissions Determination, Actual-to-Future-Actual Methodology, Plantwide Applicability Limitations, Clean Units, Pollution Control Projects, 67 Fed. Reg. 80,186, 80,190-91 (Dec. 31, 2002) (same).

> EPA's regulatory definition of "potential to emit" [which is incorporated into the Georgia regulations] refers generally to physical and operational constraints, but leaves room for interpretation about what forms of practically enforceable limitations may be appropriate in particular circumstances. Thus, in addition to the 1989 Guidance . . . , which discusses strategies for limiting potential emissions from newly constructed facilities, EPA has issued several subsequent guidance documents on these issues. These documents illustrate that the Clean Air Act and the implementing regulations allow for a flexible, case-by-case evaluation of appropriate methods for ensuring practical enforceability of PTE limits. The key consideration throughout these policy and guidance documents is whether the terms and conditions that limit the potential emissions are, in fact, enforceable as a practical matter.

*In re Orange Recycling & Ethanol Production Facility, Pencor-Masada Oxynol, LLC*, Pet. No. II-2001-05, 2002 EPA CAA Title V LEXIS 44, at *10-11 (Apr. 8, 2002) ("*In re Orange Recycling II*") (footnotes omitted).

31.

Consistent with this more "flexible, case-by-case" approach to limiting potential to emit, EPA has specifically endorsed the use of annual rolling total emission limitations, like those contained in Longleaf's Permit Amendment to restrict a facility's potential to emit.[40] *See* Memorandum from John B. Rasnic, Director, Stationary Source, Compliance Division, Policy Determination on Limiting Potential to Emit for Koch Refining Company's Clean Fuels Project (Mar. 13, 1992), available at <http://www.epa.gov/region07/air/nsr/nsrmemos/koch_ref.pdf> (approving federally enforceable emission limits using 365 day rolling average for $SO_2$ and VOCs, $SO_2$ emissions are calculated based on fuel sulfur content and quantity of fuel used, daily VOC emissions are calculated based on volatility, throughput, and control efficiency); *In re*

[40] As noted *supra*, Petitioners argue that in lieu of operational or production limits, a facility's PTE may only be restricted by "blanket" emission limits if they are short-term and require the use of a CEMS to verify compliance. However, in two decisions, EPA approved of a 365-day rolling average and a 12-month rolling average. It did not require short-term limits. *See In re Pope & Talbot, Inc., Lumber Mill Spearfish, South Dakota*, Pet. No. VIII-2006-04, 2007 EPA CAA Title V LEXIS 3, at *10-12 (Mar. 22, 2007); *In re Orange Recycling II*, 2002 EPA CAA Title V LEXIS 44, at *12-13. Additionally, in *In re Pope & Talbot*, EPA approved of a permit that did not require a CEMS, but instead relied on a stack test (once every five years), equations, and monthly recordkeeping to determine compliance with the emission limit. *In re Pope & Talbot, 2007 EPA CAA Title V LEXIS 3*, at *10-12.

*Orange Recycling II*, 2002 EPA CAA Title V LEXIS 44, at *12-13 (approving "a 365-day 'rolling cumulative total' emissions limit for nitrogen oxides (NO[x]) and sulfur dioxide (SO[2]), with emissions recorded each day and added to the total from the previous 364 days to determine an annual emissions total each day," and finding "that this rolling cumulative methodology is a practically enforceable and effective means of limiting PTE in this case"); *In re Pope & Talbot, Inc., Lumber Mill Spearfish, South Dakota*, Pet. No. VIII-2006-04, 2007 EPA CAA Title V LEXIS 3, at *10-12 (Mar. 22, 2007) (rejecting a similar challenge to synthetic minor permit where the permit established a facility-wide CO emission limit below the major source threshold on a 12-month rolling average, "specifie[d] three equations prescribing exactly how the [f]acility must calculate total monthly CO emissions," and required the facility "to monitor and record compliance with the plantwide CO synthetic minor source . . . limit," finding that "compliance with th[e] limit is assured by the monitoring requirements for CO emissions using the equations prescribed in [the permit]" and that the permit's "recordkeeping and reporting requirements . . . can serve to assure compliance with the emission limit").

32.

EPA's adoption of a "flexible, case-by-case" approach to limiting potential to emit, and its subsequent endorsement of synthetic minor permit limits using annual rolling totals, support EPD's decision to use a practically enforceable annual rolling total limit for HAP emissions from the Longleaf facility.[41] Other than the *Louisiana-Pacific* case and the 1989 EPA Guidance Document, Petitioners have cited no legal authority to support their argument that the Permit Amendment must contain physical or operational limitations (e.g., limits on the type or amount

[41] The undersigned notes that EPA was given an opportunity to comment on the Permit Amendment at issue, and did not do so.

of fuel consumed or hours of operation) or short-term limits and a CEMS. For the foregoing reasons, this Tribunal finds Petitioners' argument unpersuasive.

***Practical Enforceability of the Limits for Acid Gas HAPs***

33.

Petitioners contend that the limits and conditions regarding HCl and HF are not practically enforceable for several reasons. First, Petitioners find fault with the method by which HCl and HF emissions will be calculated. In particular, Petitioners assert that HCl and HF emissions can vary hour by hour and that the calculation of the emissions relies, in part, on the latest stack test, which could occur as infrequently as once per year. According to Petitioners, the infrequent stack tests will not sufficiently account for the variability in the emissions and will not accurately reflect the actual emissions.

34.

All parties agree that emissions can and do vary. However, Petitioners presented no actual evidence that the HCl and HF emissions will vary so greatly or to an extent that the calculations will not adequately or reasonably account for the actual emissions. Nor did Petitioners present sufficient evidence that the quarterly or annual stack tests for HCl and HF will not account for or capture that variability.[42]

35.

Notably, the Environmental Appeals Board (EAB) has found that a testing and monitoring program similar to Longleaf's rendered an emission limit in another coal-fired power plant's permit practically enforceable. *See In re Newmont Nevada Energy Investment,* LLC,

[42] In fact, the one stack test discussed by Dr. Sahu on this issue showed variability *within* the stack test. (Tr. 629-30; Ex. RI025 at 000008.) Petitioners presented no evidence concerning the appropriate frequency of stack tests to measure HCl and HF emissions. For example, Petitioners did not present any evidence of permits with more rigorous stack testing or coal sampling requirements. Instead, as discussed below, Petitioners contend that the Permit Amendment should require a CEMS to monitor HCl and HF emissions.

PSD Appeal No. 05-04, 2005 EPA App. LEXIS 29, at *116-20 (E.A.B. Dec. 21, 2005). In that case, the facility was required under its permit to measure the amount of coal combusted, to sample the coal daily for sulfur content and other variables, and to record the sampling results as 24-hour and 30-day rolling periods. *Id.* at *118-19. The facility was required to conduct a stack test within 180 days of initial startup. *Id.* at *119. Based on the stack test data and the daily coal measurements, the facility then derived a site-specific emission rate, which it used to calculate and record the emissions from the facility. *Id.* at 119-20. "On the basis of this information," the EAB explained, "it becomes a simple mathematical exercise to compute" emissions from the facility. *Id.* at 120. The EAB concluded that the permit limits were practically enforceable because "the permit contains fully adequate compliance monitoring provisions." *Id.* (citation omitted).

36.

Similar to the *Newmont* permit, Longleaf has monitoring, compliance, and recordkeeping requirements, in addition to the quarterly or annual stack testing for HCl and HF. For example, the Permit Amendment requires Longleaf to take daily samples of the coal to determine, among other things, the chlorine and fluorine content in the coal. The average of the daily chlorine and fluorine content will be used together with the percent removal and the hourly heat input to calculate the monthly HCl and HF emissions.[43] The Permit Amendment also requires Longleaf to monitor the sorbent injection rate during the stack tests and, thereafter, operate the scrubber

[43] On the one hand, Petitioners argue that there is no correlation between coal chlorine content and HCl emissions. For this proposition, they cite one study that found no correlation between coal chloride levels and HCl emissions. (*See* Ex. RI056 at 000017.) On the other hand, Petitioners' own expert clearly believes that there is a correlation between the chlorine content in coal and HCl emissions. (*See* Pet. St. 5 ¶¶ 129-141 (opining that if Longleaf burned any significant amount of CAPP coal it would quickly exceed the 10 tpy limit on HCl emissions due to the high chlorine content in CAPP coal).) Additionally, the one study relied on by Petitioners states that the HCl emission data contained many low values at or near the detection limits, "making analysis of possible correlations difficult." (Ex. RI056 at 000017.) For these reasons, the undersigned does not find Petitioner's argument to be credible or persuasive.

within the sorbent injection range set at the time of the performance test. This will provide assurance that the scrubbers are operating in a manner that ensures optimum reduction of HCl and HF from the flue gas.[44] Finally, the Permit requires Longleaf to install and operate CEMS for emissions of $SO_2$ and PM filterable, among others, from the PC-fired boilers. The $SO_2$ and PM filterable CEMS will provide information regarding how the dry scrubber and fabric filter baghouse are performing. As noted above, monitoring $SO_2$ via a CEMS will give an indirect indication of HCl removal.[45]

37.

Second, Petitioners argue that the Permit Amendment should require the installation of a CEMS for HCl and HF. As noted *supra*, although such systems exist, they are not currently able to accurately or meaningfully collect data when the concentration of HCl and HF in the flue gas stream is as low as it is expected to be at Longleaf. Therefore, this Tribunal concludes that it would be unreasonable to require a CEMS to determine compliance with HCl and HF emissions, at this time.

38.

Third, Petitioners argue that the Permit Amendment should contain limits on the amount of CAPP coal that Longleaf can burn. In particular, Petitioners contend that due to the high levels of chlorine content in CAPP coal, Longleaf could exceed the 10 tpy limit of HCl if it

[44] While Petitioners agree that monitoring the sorbent injection rate is a good idea, they assert that doing so, in and of itself, will not be a good predictor of the removal efficiency for HCl and HF. (Pet. St. 2 ¶ 114.) Petitioners further argue that in order to use the sorbent injection rate as an enforceable parametric monitoring condition, the Permit Amendment must require validation testing and development of a correlation. These criticisms miss the mark. The requirement to monitor the sorbent injection rate and operate the scrubber within the range set during the stack test does not stand on its own. It is not being used as an emission limit, in lieu of direct limits on HCl and HF. It is simply an additional measure aimed at improving the scrubber's reduction of HCl and HF emissions.

[45] Petitioners appear to argue that there is no correlation between $SO_2$ and HCl removal. For that proposition, Petitioners cite one study that failed to find a statistically significant correlation between $SO_2$ and HCl removal. (*See* RI056 at 000017.) However, the study also noted that additional analysis with more complete data was required before final conclusions regarding possible correlations between $SO_2$ and HCl penetration. (*Id.*)

burned CAPP coal for a continuous period of time before it conducted its first stack test. The undersigned finds this argument unpersuasive.

39.

Longleaf has acknowledged that the limits in the Permit Amendment significantly limit its ability to burn CAPP coal. Furthermore, the Permit Amendment requires Longleaf, on a daily basis, to analyze the coal burned for its chlorine content. The Permit Amendment also requires Longleaf to account for the monthly and 12-month rolling total emissions of HCl. (Ex. J023 at 000015, 000019.) Thus, even if Longleaf chose to burn CAPP coal for a significant period of time prior to conducting a stack test, Longleaf is still required to account for those emissions that occur prior to the stack test and to comply with the emission limits. If the monthly emissions of HCl exceeded 1/12 of the annual limit, Longleaf would be required to report the exceedance and provide an explanation of how it intends to maintain compliance with the limit. (Ex. J023 at 000019.)

40.

As the permittee, Longleaf will bear the burden if it fails to comply with the limits in the Permit Amendment. As EPA has explained,

> it is simply not possible for the facility . . . to compute precisely its emissions until the facility is operational. . . . This approach is certainly not without some risk to [the permittee], who must stay within these emissions limits even if they have underestimated them. However, as the Court found in *United States v. Louisiana-Pacific Corp.*, 682 F. Supp. 1141, 1166 (D. Colo. 1988),
>
> > . . . the regulatory framework at issue may be unusually difficult to comply with because it requires a source to guess what its emissions will be prior to construction and the commencement of operations. Nonetheless, there must be no question that the burden of guessing correctly remains with the source, and that a mistake in this process can indeed result in penalty. . . .

*In re Orange Recycling & Ethanol Production Facility, Pencor-Masada Oxynol, LLC*, Petition No. II-2000-07, 2001 EPA CAA Title V LEXIS 4, at *64-65 (May 2, 2001) ("In re Orange Recycling I") (quotations omitted).

41.

Petitioners' argument that the Permit Amendment should limit the amount of CAPP coal Longleaf can burn is premised on the assumption that Longleaf will take unreasonable risks within the first six months of operation. Petitioners presented no evidence to support such an assumption. Accordingly, the undersigned concludes that limits on the amount of CAPP coal that Longleaf may burn are not required to make the Permit Amendment practically enforceable.

***Practical Enforceability of the Limits for Organic HAPs***

42.

Like the limits for the acid gas HAPs, Petitioners contend that the limits for organic HAPs are not practically enforceable for a number of reasons. Specifically, Petitioners assert that the limits for organic HAPs are not practically enforceable because: (1) the frequency of stack testing is insufficient; (2) a margin of compliance or margin of safety should be added to the calculation; (3) when the stack test results report emissions as "non-detect" or "below the detection limit," the Permit Amendment should require Longleaf to report emissions of organic HAPs at the level of the detection limit; (4) the test methods specified will not reliably capture all organic HAPs; and (5) the Permit Amendment does not clearly require monitoring for all sources of organic HAPs.

43.

Petitioners first assert that the one stack test every five years is insufficient to account for the variability in emissions.[46] However, Petitioners have not presented any evidence of a reasonable alternative means to calculate the emissions of organic HAPs.

44.

As previously discussed, organic HAPs usually result from incomplete combustion and are most effectively controlled by good combustion practices. By carefully controlling the fuel-to-air ratio and residence time, temperature, and turbulence of the fuel and air mixture in the boiler, Longleaf will minimize organic HAP emissions. By monitoring the CO CEMS data, Longleaf can gauge how effectively the boiler is operating.[47] With these measures in place, the emissions of organic HAPs are not expected to vary as much as the acid gas HAPs and therefore less frequent stack testing is necessary. For this reason, the Undersigned concludes that the stack testing (once every five years), together with monthly emission calculations, monitoring, recordkeeping, and reporting requirements are sufficient to demonstrate compliance with the organic HAP limits. *See In re Pope & Talbot, Inc.*, 2007 EPA CAA Title V LEXIS 3, at *12-13 (finding that one stack test every five years, monthly emission calculations, monitoring, recordkeeping, and deviation reporting sufficient to demonstrate compliance with the emission limit).

[46] Petitioners' expert opined that many factors *can* cause emissions of organic HAPs to vary. Petitioners did not, however, present sufficient evidence of the extent to which the emissions *will* vary. Nor did Petitioners present any evidence that the emissions will likely vary so greatly or to an extent that the calculations will not adequately or reasonably account for the actual emissions.

[47] Although Dr. Sahu did not agree that CO emissions are a good indicator or surrogate for organic HAPs, he does acknowledge that CO emissions are an indicator of combustion efficiency. (Tr. 148.) He also acknowledges that at certain times (i.e., at maximum load), combustion of the fuel (coal) will result in more complete destruction of certain organic HAPs (i.e., the volatile organic HAPs). (Pet. St. 5 ¶ 46.) Thus, Dr. Sahu does recognize that there is *some* relationship between combustion efficiency and destruction of at least certain organic HAPs.

45.

Petitioners' expert, Dr. Sahu, opined that in order for stack tests to be used to determine compliance, multiple and frequent stack tests conducted at every load level and under varying boiler operating conditions would be necessary to capture the variability of the emissions.[48] Even Petitioners do not contend that such an approach would be reasonable. Instead, Petitioners argue that a significant "margin of compliance" or "margin of safety" must be added into the organic HAP calculations, to assure that calculated emissions reflect the actual emissions. On this point, Petitioners presented no actual data or numbers.[49] This assertion is merely based on the presumption that emissions will vary.

46.

Contrary to Petitioners' assertions, EPA has recognized that it is not necessary to "require that the [potential to emit] limit be set at some level below the major source size in order to provide a margin of safety" when the permit contains other provisions that "provide[] reliable data to assure that [the facility's] emissions stay below the major source size." *In re Orange Recycling I,* 2001 EPA CAA Title V LEXIS 4, at *67-68.[50]

47.

Petitioners also contend that because the emissions of organic HAPs are expected to be low, the results of the stack testing are likely to indicate that the emissions are below the

[48] All parties agree that there is no CEMS currently available for organic HAPs.

[49] For example, Petitioners did not present any data to show the amount by which the emissions are likely to vary. Nor did they propose an actual margin of safety (i.e., an actual number).

[50] Admittedly, the other provision in the Masada permit was for a CEMS to directly measure the sulfur dioxide and nitrogen oxide emissions. As noted *supra*, a CEMS to directly measure organic HAP emissions does not currently exist. However, there are other provisions in the Longleaf Permit and Permit Amendment that will provide indirect and direct data about HAP emissions. As previously discussed, the CO CEMS will provide information concerning boiler efficiency and to some degree the effectiveness in minimizing certain organic HAPs. Additionally, Condition 4.2(j) provides for organic HAP stack testing once every five years "or as requested by [EPD]." (Ex. J023 at 000009.) Thus, if organic HAP emissions are higher than anticipated, EPD can readily require more frequent testing.

detection limit. In those instances, Petitioners argue that the Permit Amendment should require Longleaf to report the emissions as the detection limit. In other words, if the detection limit for a particular organic HAP is $1.76 \times 10^{-6}$ lb/MMBtu, then Petitioners contend that Longleaf should be required to report the emissions as $1.76 \times 10^{-6}$ lb/MMBtu, as opposed to zero. When a test reports the result as a non-detect or below the detection limit, there is no way to know the actual emissions. The emissions could be zero or anywhere between zero and the detection limit. Petitioners presented no statutory or regulatory authority for requiring Longleaf to report its emissions as the detection limit, when a stack test reports a non-detect. Nor did Petitioners present any evidence that such an approach has been taken in any other permit. Because there is no way to know, more likely than not, that a particular organic HAP is present in any amount when it is reported as below the detection limit, the undersigned concludes that Petitioners' approach is unsupported in fact, law, and logic.

48.

For the reasons discussed, this Tribunal concludes that the frequency of stack testing for organic HAPs in the Permit Amendment is sufficient, a margin of compliance is not necessary or required, and Longleaf should not be required to report organic HAP emissions as the detection limit when the test result is below the detection limit. Notwithstanding, the undersigned does agree with Petitioners that the test methods specified in the Permit Amendment will not reliably measure all organic HAPs, and that the Permit Amendment's provisions are ambiguous with regard to all sources of HAPs.

49.

Condition 4.1(v) of the Permit Amendment specifies EPA Method 0031 to test for volatile organic HAPs and Method 0010 to test for semi-volatile organic HAPs. However, these

Methods will not reliably measure all organic HAPs. In particular, these methods will not reliably measure emissions of acetaldehyde, acrolein, formaldehyde, methyl chloride (chloromethane), and dioxins/furans. The potential emissions of these five organic HAPs could be as high as 5.34 tpy. Neither EPD nor Longleaf presented any testimony or evidence to controvert Dr. Sahu's testimony on this point. Longleaf's response to Dr. Sahu's testimony on this point was that the specified methods were the methods adopted by the Georgia Board of Natural Resources for use in Georgia. (Int. St. 2 ¶ 69.) EPD's response was that Longleaf is required to submit a test plan to EPD prior to conducting the required stack tests, which EPD will then review to determine its sufficiency, and EPD can change the test protocol if necessary. (Tr. 561-62.) These responses do not refute the substance of Dr. Sahu's testimony.

50.

Longleaf and EPD have chosen to determine the emissions of organic HAPs from the two main boilers through site-specific emission factors derived from stack testing. Because the test methods specified for these five pollutants will not reliably measure their emissions, the emission factor derived from the stack testing will not likely be accurate, and thus the emission calculations will not likely be accurate. Consequently, the deficiencies in the specificed test methods do not allow the emissions of organic HAPs to be verified and render the limits for five organic HAPs unenforceable as a practical matter. (Ex. J024-000014.)

51.

Petitioners also contend that the Permit Amendment does not contain any monitoring provisions for the organic HAP emissions from the 1500 kW diesel generator, the 450 hp diesel fire-water pump, or the five fuel storage tanks. In response, EPD and Longleaf describe the HAP emissions from these sources as insignificant or *de minimus*. Additionally, EPD and Longleaf

contend that Conditions 2.25, 8.29, and 8.30, which reference emissions from "the facility" or "the entire facility," make it clear that Longleaf must monitor and report all of the emissions from the facility, including all sources.

52.

While the emissions from these other sources may be *de minimus*, they will still amount to something. Longleaf chose to be considered a minor source. In doing so, Longleaf is agreeing to accept absolute limits of less than 10 tpy of any one HAP and less than 25 tpy of any combination of HAPs. Furthermore, because the Permit Amendment does not contain surrogacy, Longleaf is required to report the emissions of the actual HAPs, as opposed to a surrogate pollutant. Thus, to determine compliance, EPD must receive reports that account for the all HAP emissions.

53.

It is true that Conditions 2.25, 8.29, and 8.30 reference emissions from "the facility" or "the entire facility." However, Conditions 8.29, and 8.30 refer to Condition 8.27 to determine the "total" emissions. But, as noted above, Condition 8.27 does not contain any reference to emissions from sources other than the two main boilers and the auxiliary boiler. Condition 8.27 simply does not calculate or account for the "total" emissions. The reference to "the facility" and "the entire facility" in Conditions 8.29 and 8.30 are incongruent with the equations contained in Condition 8.27, which only account for emissions from the two main boilers and the auxiliary boiler. This disconnect makes these provisions ambiguous and, thus, not practically enforceable. (J024-000014.)

***Longleaf's Estimates of its Potential to Emit***

54.

In its minor source application, Longleaf provided revised estimates of its potential to emit HAPs. Longleaf's revised estimates were based, in part, on the EPRI emission factors. Petitioners argue that Longleaf's revised estimates are unreliable and cannot serve as an alternative basis to classify Longleaf as a minor source.[51]

55.

Petitioners contend that if this Tribunal were to find the limits in Condition 2.25 not to be enforceable as a practical matter, pursuant to EPD Guidance, it would be necessary to estimate Longleaf's potential to emit based upon the maximum hourly uncontrolled emission rate. Stated differently, if this Tribunal were to find the limits in the Permit Amendment not to be enforceable as a practical matter, it should reject Longleaf's estimates as unreasonable and determine, based on EPD Guidance, that Longleaf is a major source and, therefore, subject to the case-by-case MACT analysis.

56.

As noted above, EPD did not rely on Longleaf's revised estimates or the EPRI emission factors to decide whether Longleaf was a minor source or a major source. Rather, it presumed that Longleaf was a major source and relied on the limits and conditions in the Permit Amendment to establish Longleaf's *synthetic* minor source status. The only use EPD made of Longleaf's revised estimates was to support the assessment that Longleaf could actually achieve emission levels below the major source threshold. Because EPD did not rely on those estimates

[51] Specifically, Petitioners find fault with Longleaf's revised estimates of organic HAPs because they are based on EPRI emission factors, as opposed to the AP-42 emission factors. Petitioners also contend that Longleaf's revised estimates of the acid gas HAPs suffer from flawed and biased methodology.

to consider Longleaf a minor source and, therefore, exempt from the MACT analysis, there is no reviewable action before this Tribunal.

**CONCLUSION**

The undersigned concludes that Petitioners have proven by a preponderance of the evidence that the limits and conditions in the Permit Amendment are not practically enforceable, to the extent that the test methods specified in Condition 4.1(v) for volatile and semi-volatile organic HAPs will not reliably measure five organic HAPs (i.e., acetaldehyde, acrolein, formaldehyde, methyl chloride (chloromethane), and dioxins/furans), and to the extent that Conditions 8.27, 8.29, and 8.30, when read together, are ambiguous. This Tribunal concludes that the limits and conditions in the Permit Amendment are practically enforceable in all other respects.

The Permit Amendment is hereby **REMANDED** with the following directions:

(1) Respondent is directed to amend Condition 4.1(v) to provide for EPA-approved test methods specifically designated for acetaldehyde, acrolein, formaldehyde, methyl chloride (chloromethane), and dioxins/furans; and

(2) Respondent is directed to amend Condition 8.27 by: (a) amending the first paragraph to make it clear that Condition 8.27 is accounting for the HAP emissions from the entire facility; (b) adding a subparagraph to calculate or account for the HAP emissions from sources other than the two main boilers and the auxiliary boiler; and (c) amending the last subparagraph (currently 8.27(h)) to include the new subparagraph in the total emissions calculation.

**SO ORDERED this 19th day of April, 2011.**

**STEPHANIE M. HOWELLS**
**Administrative Law Judge**

Attachment 3

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW MEXICO

GRAND CANYON TRUST and
SIERRA CLUB,

Plaintiffs,

v. No. CIV 02-552 BB/ACT

PUBLIC SERVICE COMPANY
OF NEW MEXICO,

Defendant.

MEMORANDUM OPINION
ON DEFENDANT'S GENERAL DEFENSES

THIS MATTER is before the Court based on the Stipulated Order filed October 1, 2003. The Court having received evidence on November 17-19, 2003, and considered the briefs of the parties as well as their requested findings of fact and conclusions of law, enters this Memorandum Opinion as the Findings of Fact and Conclusions of Law of the Court.

*Facts*

This is a citizens' suit under the federal Clean Air Act, 42 U.S.C. §§ 7601-7671Q ("CAA"), brought by the Sierra Club and Grand Canyon Trust ("Plaintiffs") against Public Service Company of New Mexico ("PNM"). Plaintiffs allege that PNM violated

**the opacity limit set in its Operating Permit ("Operating Permit") for Units 1, 3, and 4 of PNM's San Juan Generating Station ("San Juan").**

**PNM is a New Mexico corporation and is part owner and the operating agent for San Juan, which is located approximately 15 miles from Farmington, New Mexico. San Juan consists of four separate generating units that went on-line between 1973 and 1982 with a cumulative electric generating capacity of approximately 1,600 megawatts. It is a fossil fuel facility which generates electricity in a coal-fired boiler to create steam, and then passes that steam through a turbine to drive a generator. San Juan burns over six million tons of coal per year.**

**In the case of a coal-fired power plant such as San Juan, particulate matter emissions are made up primarily of tiny coal fly ash particles from the combustion process. Because increased particulates in a gas stream will generally cause an increase in the opacity of that gas stream, measurements of opacity can be a useful surrogate for determining when particulate levels are rising or falling. Many factors influence plume opacity readings, including particle density, size, distribution, and color.**

**The method historically used to measure the opacity of emissions is the periodic visual method recognized by the United States Environmental Protection Agency ("EPA") as Method 9. A Method 9 observation is performed by a human observer who is trained and certified to perform a visual measurement of the opacity of a gas**

stream exiting the stack of an emissions source. A valid Method 9 reading requires at least 24 individual observations at 15-second intervals. To be certified, a reader's recorded observations can differ from the recently calibrated smoke meter readings by as much as 15 percent opacity on any single 15-second reading and by as much as 7.5 percent opacity on average (in terms of absolute error) for each category of 25 plumes. These variances are measured against an electronic opacity monitor which projects a beam of light across the stack and records the opacity.

Historically, the New Mexico Environment Department ("NMED") conducted EPA Method 9 tests at San Juan during annual or semi-annual inspections. After the 1990 amendments to the CAA, the EPA adopted regulations allowing continuous electronic monitoring ("CEM") of gas emissions. As a part of the electronic monitoring, state licensing authorities were then encouraged to require continuous opacity monitoring ("COM") under the Title V program.

The COMs in the stacks of San Juan consist of transmissometers that continuously measure the amount of light that can pass through the emissions of the power plant before such emissions are emitted into the atmosphere. These COMs are what are known as "dual pass" units that utilize a light source (or beam) on one side of the stack that is aimed at a mirror on the other side which reflects the light back to a sensor that is co-located with the light source. Causes of potential erroneous COMs readings include misalignment, dirty optics, and analyzer drift. The San Juan COMs

**are designed to automatically readjust the monitor output in response to the allowed daily drift.**

**PNM records the average opacity of air pollutant emissions from San Juan by COM at six-minute intervals, except for periods of monitor downtime. The opacity data from the COMs is retained in a computer at San Juan. PNM is required to submit on a quarterly basis a written report to NMED that discloses each period of time in which opacity or emissions or pollutants from San Juan exceed the applicable standard ("quarterly reports").**

**The COMs generate printed data showing opacity readings expressed in percentage opacity on a six-minute block average basis to the nearest two decimal places. PNM identifies those readings from the COMs that show opacity in excess of 20 percent and submits quarterly reports to the NMED itemizing the readings in excess of 20 percent opacity together with a notation identifying the cause for the elevated reading. In instances where there is more than one opacity reading in excess of 20 percent in a given 24-hour period, PNM sometimes records the first six-minute period in excess of 20 percent opacity and the last recorded six-minute period in excess of 20 percent opacity and reports that all six-minute periods in between are at some level in excess of 20 percent opacity.**

**During the period covered by this suit, PNM experienced significant increases in its opacity measurements and reported "excess emissions" likely related, at least in**

part, to the measurement of water vapor condensing on fly ash in the stacks following the installation of a wet limestone $SO_2$ control device. PNM notified the NMED in both the quarterly excess emissions reports and in separate correspondence that the condensation of water vapor was causing "higher than normal" opacity readings. Over time, PNM has continued to improve operator control to reduce the number of periods of "excess emissions" related to condensed water vapor.

***Issues***

Under the Stipulated Order, this phase of the proceedings is to be limited to: (1) the method for determining opacity compliance; (2) whether using COMs creates a more stringent opacity limit; (3) whether using COMs requires a showing that the readings are equivalent to EPA Method 9; (4) whether water vapor bias is a valid defense; and (5) whether startup, shutdown, and malfunction is a valid defense. Stip. Ord. ¶ 3A.

## *I. The Proper Method for Determining Opacity Compliance*

Congress amended the CAA in 1990 to provide for "enhanced monitoring" compliance standards. 42 U.S.C. § 7313-14. "Thus, Congress expressed an intention to obligate major sources to a more stringent reporting standard." *Natural Resources Defense Council v. EPA*, 194 F.3d 130, 133 (D.C. Cir. 1999). In reaction to the congressional mandate, the EPA now requires "major sources" such as San Juan to install COMs as part of their Title V compliance. 40 C.F.R. 64.3(a) (1999). "The

**science of CEMS is sound and the policy behind their adoption encourages reliability." Susan Norton, *Factors for Determining Validity of Evidence in Clean Air Act Litigation*, 15 J. Land Use & Envtl. L. 235, 273 (2000) The federal regulations were therefore amended to permit the use of COMs as "credible evidence" of violations of the CAA. *See* 62 Fed. Reg. at 8314, 8317-18, 8326-28 (1997). Shortly thereafter, these regulations were judicially recognized as consistent with the CAA's amended emission monitoring requirements. *Natural Resources Defense Council*, 194 F.3d at 137. For further discussion, *see* Arnold W. Reitze, Jr. and Steven D. Schell, *Self-Monitoring and Self-Reporting of Routine Air Pollution Releases*, 24 Colum. J. Envtl. L. 63, 126, 128 (1999).**

**The NMED became the CAA monitoring agency under a Title V operating permit program to which EPA gave final approval on November 26, 1996. 61 Fed. Reg. 60032. The reliability and proper use of COMs are recognized in the PNM Operating Permit for San Juan. That permit, although issued by the State, is known as a federal operating permit because it is designed to assure compliance with the requirements of the CAA. 42 U.S.C. § 7661c(a). The EPA regulations require "all state operating permits contain monitoring" to assure compliance with CAA standards. 40 C.F.R. 70.6(c)(1). Moreover, the EPA has expressly indicated that it expects the state enforcement agencies to determine the proper compliance assurance monitoring. 62 Fed. Reg. 54907. *See further* Robert J. Lambrechts, *MDNR's Toolbox for Encouraging Compliance: Title V Permits, Compliance Assurance Monitoring,***

*Periodic Monitoring, the Credible Evidence Rule and Compliance Certifications*, 9 Mo. Envtl. L. & Policy Rev. 1, 5 (2001) (hereinafter "Lambrechts") ("the question remains as to whether periodic monitoring is required in a given state, since the Title V Program is implemented at the individual state level").

PNM was issued the most recent Operating Permit for San Juan on August 7, 1998. The PNM Operating Permit sets the maximum allowable opacity emission standard at 20%. (Pls.' Ex. 2 p. 13). Permit Condition 3.4.2.1 provides "in order to demonstrate compliance with 40 C.F.R. 60, Subpart D, Section 60.42(2)2, opacity shall be continuously monitored in accordance with Section 60.45(a)." (Pls.' Ex. 2 p. 15-16). Operating Permit Condition 3.2.1 allows a deviance over the 20% opacity limit for one six-minute period per hour of not more than 27 percent opacity.

This COM requirement was reemphasized when PNM specifically requested the NMED to specify what method was required by the San Juan Operating Permit for determining compliance with the opacity limits. By letter of October 30, 2002, the NMED Air Quality Bureau Chief, Sandra Ely, stated:

> For opacity compliance determination methods the Department notes Condition 3.4.2.1 of Permit P062 itself, which states: "For opacity in order to demonstrate compliance with 40CFR60, Subpart D, Section 60.42(a)2, opacity shall be continuously monitored in accordance with Section 60.45(a)." We believe that the reference to "Section 60.45(a)" is a reference to Paragraph (a) of Section 45 of Part 60 of Title 40 of the Code of Federal Regulations, relating to continuous monitoring systems, and that a reasonable interpretation of the condition is that compliance

> **with the opacity limits specified at 40 CFR 60.42(a)2 shall be determined using the continuous opacity monitoring specified at 40 CFR 60.45(a).**

**Pls.' Ex. 6 p. 2 (emphasis added).**

**The State reaffirmed and reemphasized its position in its letter to PNM of September 12, 2003:**

> **Condition 3.4.2.1 [of PNM's Permit] clearly reflects the Department's intent to establish COMs as the applicable compliance method for opacity. The condition cites the opacity limit, 40 C.F.R. 60.42(a)2, and requires the use of COMs "to demonstrate compliance." EPA reference Method 9 is not mentioned. Quite plainly, the Department established COMs - not EPA Method 9 - as the applicable compliance determination method for opacity.**

**Pls.' Ex. 26 p. 3. Unless contrary to law, the Court should defer to the NMED's interpretation of the Operating Permit. *Gordon v. Norton*, 322 F.3d 1213, 1220 (10th Cir. 2003). Here, the NMED interpretation is not only the normal reading of the words, but is clearly consistent with the applicable federal regulation.**

**Indeed, it would appear that the electronic COMs are also accepted by PNM as the method for determining opacity compliance. While PNM continues to argue in favor of Method 9 as the accepted standard, the evidence is undisputed that no Method 9 test has been conducted at San Juan or submitted to the NMED for at least three years. If PNM actually thought Method 9 were the only accepted method of opacity measurement under its permit, the failure to conduct or submit an annual Method 9 test would itself be a violation. In lieu of Method 9 results, however, PNM consistently**

**sent quarterly reports of its COMs data to the NMED. It appears, then, in spite of its arguments, as a matter of operation even PNM accepts COM reports as the standard for measuring opacity compliance.**

**PNM argues that while the COM readings can be used to demonstrate opacity compliance, they may not legally be used to prove opacity violations. On its face this position presents a logical contradiction. Noncompliance is the logical converse of compliance. Lee E. Teitelbaum, *School Discipline Procedures - Some Empirical Findings and Some Theoretical Questions*, 58 Ind. L. J. 547, 583 (1984). "It follows that if such records [COM reports] are probative of compliance with the Act they are probative of the Act's violation." *Sierra Club v. Public Service Co. of Colo., Inc.*, 894 F. Supp. 1455, 1459 (D. Colo. 1995). Moreover, the PNM Operating Permit incorporates "40CFR60, Subpart D, Section 60.42(a)2" which specifically provides:**

> **On and after the date on which the performance test required to be conducted by Section 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility any gases which exhibit greater than 20 percent opacity except for one 6-minute period per hour of not more than 27 percent opacity. (Emphasis added).**

**The prohibitory phrasing of this regulation clearly establishes that the EPA contemplates COM readings be used as the standard for noncompliance as well as**

**compliance.[1] Under the CAA, it is the language of PNM's San Juan Permit which determines the method for determining compliance.** ***Natural Resources Defense Council*****, 194 F.3d at 137. Under the clear language of Permit P062 as well as the NMED's interpretation, opacity compliance, or the failure thereof, may thus be measured by the COM readings.**

*2.* ***Do COMs Create a More Stringent Opacity Limit than Method 9?***

**Since COMs are, then, a legitimate method for determining opacity compliance, the Court must address the remaining issues presented in the Stipulated Order. The second and third issues presented in that order are stated as "(2) whether using continuous opacity monitors (COMs) creates a more stringent opacity limit; (3) whether using COMs requires a showing that the readings are equivalent to EPA Method 9." Given the Court's understanding of the evidentiary record and the controlling Operating Permit, the Court considers these questions presently irrelevant.**

**COMs cannot create a "more stringent opacity" limit than Method 9 as the accuracy of the Method 9 readers who eyeball the opacity of the gas plume emitted from a plant is tested against COM measurements.** ***See III Quality Assurance Handbook for Air Pollution Measurement Systems*****, EPA-600/4-77-027b, Stationary Source Specific Methods, Addition § 3.12; for further discussion,** ***see*** **Norton, 15 J.**

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[1] *See further* Daniel Riesel, *Forecasting Significant Air Act Implementation Issues: Permitting and Enforcement*, 14 Pace Envtl. L. Rev. 129, 154 (1996); Reitze and Schell, 24 Colum. J. Envtl. L. at 128.

**Land Use & Envtl. L. at 269-73. The qualitative standards for both tests is, then, the same since the tester's eyeball is "calibrated" by the COM.**

**It does appear likely that quantitatively COMs produce much more frequent and consistent results than Method 9. If this is considered "more stringent," then that is clearly what Congress intended by the 1990 amendments to the CAA.** ***Natural Resources Defense Council,*** **194 F.3d at 133. The EPA clearly does not see the use of COM as increasing the standard [2] and analogizes the use of COMs to police radar guns; "To take a simple analogy, allowing the use of radar guns ... may raise the chance that a speeder will be detected, but this does not alter the legal stringency of a posted speed limit." 62 Fed. Reg. 8326. For further discussion,** ***see*** **Paul D. Hoburg,** ***Use of Credible Evidence to Prove Clean Air Act Violations,*** **25 B.C. Envtl. Aff. L. Rev. 771, 823 (1998). Compliance with EPA standards, then, may then allow COMs data be analyzed by Method 9 criteria (*e.g.*, opacity must exceed 23% for a minimum of 24 consecutive observations at 15-second intervals) before the EPA would even consider enforcement. Significantly, however, whether COMs are more stringent or are equivalent to Method 9 ignores the critical point that PNM's permit requires COMs**

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[2] *See also* 62 Fed. Reg. at 8315, 8317-18, 8322-24; Reitze and Schell, 24 Colum. J. Envtl. L. at 130; Riesel, 14 Pace Envtl. L. Rev. at 155 (discussing 1996 EPA Compliance White Paper indicating the Agency will use other credible evidence only to pursue major violations); David Langer, *The Clean Air Act's Credible Evidence Rule: Achieving Greater Efficiency in Environmental Regulation*, 23 Vt. L. Rev. 673, 682-4 (1999); Lambrechts at 7-8.

**to be used as the method of compliance.[3] How such COMs readings would compare to hypothetical Method 9 readings is therefore only of academic interest on this record.**

***3. Water Vapor***

**Having established Operating Permit P062 as the basis for COM compliance standard, it becomes necessary to examine this document to determine how "stringent" it is and measure the PNM data against it. Section 1.1.1 of the Permit provides:**

> **"The permittee shall abide by all terms and conditions of this permit, except as allowed under section 502(b)(10) of the federal Act. Any permit noncompliance is grounds for enforcement single action; and may result in termination of this permit. Additionally, noncompliance with federally enforceable conditions of this permit constitutes a violation of the federal Act."**

**As noted earlier, Permit § 3.4.2.1 also incorporates 40 C.F.R. 60, Subpart D, Section 60.42(a)2, which requires:**

> **On and after the date on which the performance test required to be conducted by Section 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause to be discharged into the atmosphere from any affected facility any gases which exhibit greater than 20 percent opacity except for one 6-minute period per hour of not more than 27 percent opacity.**

**The quarterly Title V Opacity Emission Deviation reports which Plaintiffs introduced into evidence (Exs. 3 and 4) contain significant evidence of emissions in**

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[3] The first draft of the permit at issue in this case said that Method 9 was to be used for determining opacity compliance. The EPA, however, found that the draft permit failed to establish an appropriate method for determining opacity compliance. In response, PNM modified the draft permit to adopt COMs in Condition 3.4.2.1.

**excess of 20% opacity. Using as an example the fourth quarter of the 1998 report on Unit 1, PNM has failed to adequately explain numerous log entries and why they should be excused under its Title V permit. On October 2, opacity readings higher than 60% occurred for more than 12 hours and were attributed to "High hoppers in ash conveying system." This occurred again on October 4, 5, and 6 with similar readings for similar periods. (Exhibit 3, p. 10). Readings between 30% and 56% occurred during November 7-8 and were again explained by high ash hoppers in combination with "water vapor in the stack." *(Id.)***

**Uncombined water is not a regulated emission and indeed in an arid climate like New Mexico would likely benefit both the terrain and environment. Recognizing this, the Method 9 reader is required to read the plume at a point where water vapor is not present. 40 C.F.R. pt. 60 app. A § 2.3. Moreover, according to the EPA, such water vapor should be readily distinguishable by the trained observer. *Id.; see also Lloyd A. Fry Roofing Co. v. State*, 541 S.W.2d 639, 643 (Tex. Civ. App. 1976). Unfortunately, the way in which the San Juan units are configured requires the continuous opacity monitors be installed immediately above the wet limestone sulfur removal filters. And whatever visual ability a human observer may possess at a distance, the COMs in this position are unable to readily distinguish water vapor from particulates. The wet limestone process produces vast clouds which are generally opaque, but, because consisting largely of steam, not so rich in particulates as the opacity of the clouds**

would suggest. PNM argues "opacity is not in these circumstances a good proxy for pollution." *See Bethlehem Steel Corp. v. EPA*, 782 F.2d 645, 654 (7th Cir. 1986). The issue, then, becomes whose burden is it to quantify what percentage of the opacity is a result of particulate matter and what percentage consists of what non-scientists call steam.

Since the Operating Permit and 40 C.F.R. 60, Subpart D, establish the basic standard simply as "opacity," the burden must shift to the party, here PNM, trying to explain why opacity as read by the COM is water and not the particulate matter which the CAA targets. *See Public Interest Research v. Elf Atochem North America, Inc.*, 817 F. Supp. 1164, 1177-8 (D.N.J. 1993); *Student Public Interest Research Group of New Jersey, Inc. v. Fritzsche, Dodge & Olcott, Inc.*, 579 F. Supp. 1524, 1538 (D.N.J. 1984), *aff'd*, 759 F.2d 1131 (3d Cir. 1985). Rather than produce Method 9 readings that could prove the opaque plume was water vapor rather than particulates, PNM produced two witnesses to testify only that water certainly must have contributed to the excess opacity readings.

PNM's Environmental Services Supervisor at San Juan, Mr. Mike Farley, testified that although he attributed many of the opacity readings that were over 20 percent to "water vapor," he had no idea how to determine opacity without the "water vapor" or whether it was in fact less than 20 percent by itself. Tr. 363-365. When asked to explain various readings and quantify the water vapor percentage, Mr. Farley

**was unable to do so. In short, he was unable to quantify what portion of the opacity excess was caused by the fly ash particulate and what portion was water vapor.**

**PNM's expert witness, Dr. Grady Nichols, was also unable to provide any direct evidence that any of the readings greater than 20 percent would be less than 20 percent opacity but for water vapor. In particular, Dr. Nichols testified that in order to determine the effect of condensed, uncombined water droplets on any COM opacity reading one would need to know, at a minimum, the quantity, particle size and distribution, and chemical composition of such droplets. Dr. Nichols admitted he had no such information. Thus, Dr. Nichols was unable to demonstrate that any of the excess opacity readings were caused by water vapor. Tr. 475-7. Dr. Nichols did testify he could "guarantee" that none of PNM's excess opacity readings were entirely due to condensed water.[4]**

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[4] Q. Understanding what you know of San Juan and its emissions, and as a scientist in the field, do you believe it's correct to characterize the entire 84.9 percent opacity as being caused by uncondensed water?

A. You can guarantee that it is not, because there will be some amount of fly ash emitted which will have some opacity of their own.

Q. And we don't know, therefore – turning back to my example that we did earlier this morning – where the opacity was at 30 percent, and then went to – 45, I believe was our example – due to the water droplet influence, whether this reading here of 84 may have – just searching for a term, but – a core opacity value or an opacity without condensed water present of greater than 20 percent; it may have a value of 30 or 40?

A. You don't know anything about it.

Tr. 484.

**The Court is, thus, left in the unenviable position of recognizing that there is some likelihood that water vapor may have caused, or certainly contributed to, some of the opacity readings in excess of 20 percent, but having no factual record to determine when or why. *United States v. Turner*, 285 F.3d 909 (10th Cir. 2002) (record must contain evidence to support reliability of scientific findings). If PNM is going to explain a significant number of its opacity violations by relying on water vapor, it needs to devise some process to sample the water vapor and test it for dissolved or encased particulates. *See Bethlehem Steel*, 782 F.2d at 654.**

***4. Startup, Shutdown, and Malfunction***

**The EPA operating permit rules allow an affirmative defense of "upset" based on an emergency if the permitting authority is notified of the event. 40 C.F.R. 70.6(g). The PNM quarterly reports frequently cite "upset in air flow through boiler and precipitator" and "start-up" as the explanation for numerous excess opacity readings.[5]**

**At the initiation of the evidentiary hearing, PNM represented that startup and shutdown readings were not being contested. (Tr. 6). Indeed, Plaintiffs did not contest that these are "legal excuses" and introduced no evidence or argument as to these opacity readings. (Tr. 10). The Court will therefore consider this issue moot.**

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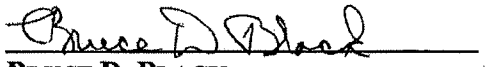
[5] (Exhibit 3, p. 2). The report on San Juan Unit #1 on October 11, 1998, cites an 87% opacity reading which lasted over 400 minutes and was explained as "unit start-up." *See also* October 31, November 13, 28, and December 29, 1998. (Exhibit 3, p. 10).

**All tendered findings and conclusions not incorporated herein are deemed Denied.**



**BRUCE D. BLACK**
**United States District Judge**

**Attachment 4**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 West Jackson Boulevard
CHICAGO, IL 60604

**DATE:** JUN 18 2012

**SUBJECT:** Review of Feedstream Analysis Plan (FAP) from Veolia ES Technical Solutions, LLC, Sauget, Illinois

**FROM:** Charles Hall, Environmental Engineer C. Hall
MN/OH Air Enforcement and Compliance Assurance Section
Air Enforcement and Compliance Assurance Branch

**TO:** Jane D. Woolums, Associate Regional Counsel
Office of Regional Counsel

David Ogulei, Chemical Engineer
Air Permits Section
Air Programs Branch

**THROUGH:** William MacDowell, Chief WM
MN/OH Air Enforcement and Compliance Assurance Section

Veolia ES Technical Solutions, LLC (Veolia), owns and operates three hazardous waste incinerators at its Sauget, Illinois, facility. The incinerators are subject to the emission standards and other requirements in the National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors, 40 C.F.R. §§ 63.1201 et. seq. (the HWC MACT). This memorandum evaluates Veolia's compliance with the provisions of 40 C.F.R. § 63.1209(c)(1) and (2).

**Regulatory Background**

Pursuant to 40 C.F.R. § 63.1209(c)(1) of the HWC MACT, prior to feeding a waste stream to any of its three hazardous waste incinerators, Veolia must obtain an analysis of the waste stream that is sufficient to document compliance with the applicable feed rate limits provided by this section. Pursuant to 40 C.F.R. §§ 63.1209(l)(1), 63.1209(m)(3), 63.1209(n)(2), and 63.1209(o)(1), Veolia must establish and comply with feed rate operating parameter limits for mercury, ash, semivolatile metals (SVM), low volatile metals (LVM), and chlorine, respectively. 40 C.F.R. § 63.1209(c)(2) requires the owner or operator to develop and implement a feedstream analysis plan (FAP) and

specifies six topics that the FAP must address.

**Discussion**

EPA made two changes to 40 C.F.R. § 63.1209(c) between proposal on April 19, 1996, and promulgation.[1] In the September 30, 1999, preamble for the promulgation of the HWC MACT, EPA did not comment on the FAP provisions. Because EPA has not amended 40 C.F.R. § 63.1209(c) since promulgation, September 30, 1999, the author does not have any reason to believe that EPA has had any subsequent occasion to comment on the FAP provisions in the HWC MACT.

On April 19, 1996, EPA proposed that hazardous waste combustors[2] be equipped with a continuous emission monitor (CEM) for particulate matter (PM), mercury, carbon monoxide (CO), total hydrocarbon (THC), and oxygen. See 61 FR 17520. In the preamble for the promulgation of the HWC MACT, EPA noted that commenters on the proposed HWC MACT questioned the availability and reliability of PM and mercury CEMs. See 64 FR 52919. The Agency decided to require CEMs for CO, THC, oxygen and PM. However, EPA decided to not require mercury CEMs, and did not require compliance with the requirement until EPA promulgated the performance specifications for PM CEM.[3] EPA did explicitly state that an owner or operator may petition the Administrator to use CEMS for compliance monitoring for PM, mercury, semivolatile metals (SVM), low volatile metals (LVM), and hydrogen chloride/chlorine gas ($HCl/Cl_2$) under § 63.8(f) in lieu of compliance with the corresponding operating parameter limits in section 63.1209. See 40 C.F.R. § 63.1209(a)(5).[4]

On April 19, 1996, EPA proposed a three-tiered compliance monitoring hierarchy in descending order of preference to ensure compliance with the emission standards: (1) Use of a continuous emission monitoring system (CEMS) for a hazardous air pollutant;

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[1] One, EPA replaced "the owner or operator" with "you"; and two, EPA added paragraph 63.1209(c)(5) to provide for waiving the monitoring requirements for certain feedstreams such as natural gas, process air, and feedstreams from vapor recovery systems.

[2] At that time, hazardous waste combustors include three subcategories: hazardous waste incinerators, hazardous waste burning cement kilns, and hazardous waste burning lightweight aggregate kilns.

[3] EPA promulgated that performance specification for PM CEMs on January 12, 2004, but a February 23, 2004, letter from Barry Breen, Deputy Assistant Administrator in the Office of Solid Waste and Emergency Response, delayed the compliance with the requirement to install, operate, calibrate, and maintain a PM CEM.

[4] Compare proposed Section 63.1210(a) with current Section 63.1209(a).

(2) absent a CEMS for that hazardous air pollutant, use of a CEMS for a surrogate of that hazardous air pollutant and, when necessary, setting limits on operating parameters to account for the limitations of using surrogates; and (3) lacking a CEMS for either, requiring periodic emissions testing and site-specific limits on operating parameters. See 64 FR 52919.

In the 16 years since EPA proposed the requirement to install mercury and PM CEMs, the technology for PM and mercury CEMs has improved and can answer the original criticisms regarding the availability and reliability of PM and mercury CEMs. On January 27, 2006, EPA approved Eli Lilly's proposal to install and operate CEMS for metals, PM, and HCl to directly demonstrate continuous compliance with the HWC MACT's mercury, SVM, LVM, PM and $HCl/Cl_2$ emission standards. Eli Lilly did not and Evonik Degussa, its successor at the Lafayette, Indiana, facility, has not reported operating problems with the multimetal, PM and HCl CEMs. Consequently, we believe that the installation and operation of multimetal, PM and HCl CEMs at Veolia is a viable option. EPA simply has to push the issue forward until Veolia installs, calibrates and begins to operate and maintain multimetal, PM and HCl CEMs.

Without pushing the issue, Veolia will continue to rely upon statements from generators who have no particular interest in knowing the exact composition of their waste or even in knowing that the concentrations of ash, chlorine, and the six HWC MACT-regulated metals are below the concentrations that are stated in the waste profile and that Veolia uses to calculate ash, chlorine and metal feedrates. Veolia's FAP literally has all of the elements that 40 C.F.R. § 63.1209(c)(2)(i) through (vi) require. However, direct measurement of emission concentrations of PM, mercury, SVM, LVM, and HCl is the Agency's stated preference for assuring compliance with the HWC MACT's PM, mercury, SVM, LVM, and HCl emission standards.

standard bcc's: Official File Copy w/enclosure(s)
Section Reading File w/o enclosure(s)
Branch Reading File w/o enclosure(s)

other bcc's:

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| Legend: | ARD:AECAB:AECAS(MN/OH):c.hall |

Attachment 5

**Fw: More from Region 5**

Jeff Ryan to: David Ogulei, Sarah Marshall, Charles Hall, Dan Bivins, Kim Garnett 09/26/2012 03:40 PM

Info from Pall

---

Jeff Ryan
U.S. Environmental Protection Agency
Office of Research and Development
National Risk Management Research Laboratory
Air Pollution Prevention and Control Division
Air Pollution Technology Branch
109 T.W. Alexander Drive
Mail Drop E305-01
Research Triangle Park, NC 27711
(919) 541-1437 (919) 541-0554 FAX

"And all this science, I don't understand."
"It's just my job 5 days a week"

Elton John - Rocket Man

---

----- Forwarded by Jeff Ryan/RTP/USEPA/US on 09/26/2012 04:39 PM -----

From: Douglas_Barth@pall.com
To: Jeff Ryan/RTP/USEPA/US@EPA
Cc: Marty_Ladner@pall.com
Date: 09/26/2012 12:25 PM
Subject: Re: More from Region 5

Jeff,

Per your request for building a case why the Xact 640 Multi-Metals CEMS cannot be rejected from monitoring a HWI.

General Information

Literature Review

Enjoy!

Douglas C. Barth
Pall Corporation Power Generation Group
Business Development Manager
Emissions Monitoring Products
2118 Greenspring Dr.
Timonium, MD 21093
cell: 860-576-2409
http://www.pall.com/industrialmaterials_monitoring

From: Jeff Ryan <Ryan.Jeff@epamail.epa.gov>
To: Douglas Barth/Timonium/Pall@PALL
Cc: Brent VanZandt/Cortland/Pall@Pall, "Dr. John A Cooper" <jacooper@cooperenvironmental.com>, Krag Petterson/Cortland/Pall@PALL, Marty Ladner/Pensacola/Pall@Pall, Matt Scharf/Timonium/Pall@Pall
Date: 09/20/2012 01:48 PM
Subject: Re: More from Region 5

Awesome Doug!

Thanks!

---

Jeff Ryan
U.S. Environmental Protection Agency
Office of Research and Development
National Risk Management Research Laboratory
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Air Pollution Technology Branch
109 T.W. Alexander Drive
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Research Triangle Park, NC 27711
(919) 541-1437 (919) 541-0554 FAX

"And all this science, I don't understand."
"It's just my job 5 days a week"

Elton John - Rocket Man

---

Douglas_Barth---09/20/2012 01:19:11 PM---Jeff, I could 100% refute the Eli Lilly experience as told to you by this HWI. However, that would

From: Douglas_Barth@pall.com
To: Jeff Ryan/RTP/USEPA/US@EPA
Cc: Brent_VanZandt@pall.com, "Dr. John A Cooper" <jacooper@cooperenvironmental.com>, Krag_Petterson@pall.com, Marty_Ladner@pall.com, Matt_Scharf@pall.com
Date: 09/20/2012 01:19 PM
Subject: Re: More from Region 5

Jeff,

I could 100% refute the Eli Lilly experience as told to you by this HWI. However, that would be properly done by contacting Rick Lambert directly using the below information.

Yes, we can operate in 40% moisture. I will send you our system configuration questionnaire, so R5 can provide us more info on this specific application.

Let's talk next week, enjoy the game!

Cheers,

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**From:** Jeff Ryan [Ryan.Jeff@epamail.epa.gov]
**Sent:** 09/20/2012 12:46 PM AST
**To:** Douglas Barth
**Cc:** Brent VanZandt; "Dr. John A Cooper" <jacooper@cooperenvironmental.com>; Krag Petterson; Marty Ladner; Matt Scharf
**Subject:** Re: More from Region 5

Thanks Doug

I'll have to catch up with you next week. Getting ready to head out on travel.

Short story is I want to confirm/refute status of system at Lily and need to know whether you can operate @ 40% moisture. These are their 2 major points as why not. The Hg is a totally separate issue, and one we are well prepared for.

Talk to you soon.

Jeff

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Jeff Ryan
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"And all this science, I don't understand."
"It's just my job 5 days a week"

Elton John - Rocket Man

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Douglas_Barth---09/19/2012 05:38:33 PM---Jeff, It looks like this effort will take some time and tact. I will be happy to guide you and R5 th

From: Douglas_Barth@pall.com
To: Jeff Ryan/RTP/USEPA/US@EPA, "Dr. John A Cooper" <jacooper@cooperenvironmental.com>, "Marty Ladner" <Marty_Ladner@pall.com>
Cc: "Matt Scharf" <Matt_Scharf@pall.com>, "Krag Petterson" <krag_petterson@pall.com>, Brent_VanZandt@pall.com
Date: 09/19/2012 05:38 PM
Subject: Re: More from Region 5

Jeff,

It looks like this effort will take some time and tact. I will be happy to guide you and R5 through the maze of information to build a scientifically defensible case for our XRF CEMS on HWI.

XRF looks like the education starting point for this effort. Hg CEMS are AF and Multi-Metals are XRF, those Hg CEMS references set no precedence here that section of the slate is clean.

As for Eli Lilly Co. Rick Lambert is the correct contact. Rick funded the research starting in 1996 with Army to R&D the first EPA certified MM CEMS. He owned and operated the system for 6 years. I will forward his contact information to you.

I will save the rest of my responses for our talk.

Cheers,
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